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New $5,000,000 Newsprint Mill for South

Walter C. Johnson, Secretary of Southern Newspaper Publishers' Association, States New $5,000,000 Southern Pine Newsprint Mill Will Be Erected Near Rome, Ga. — Mill Will Use TVA Power.

A $5,000,000 southern pine newsprint paper mill will be established within a radius of 100 miles of Chattanooga in the near future, Walter C. Johnson, secretary and manager of the Southern Newspaper Publishers' Association, stated in the Chattanooga, Tenn., *Daily Times* of March 28.

Rome, Ga. is Probable Location

Although Mr. Johnson declined to reveal the names of persons connected with the project or the exact location of the mill, it was understood that it will be located at or near Rome, Ga.

Mr. Johnson said negotiations are still under way, but that full particulars in regard to the mill will be revealed when the negotiations are completed.

Financing of $5,000,000 in Sight

"This undertaking to manufacture newsprint from southern pinewood pulp has been brewing for nearly four years," Mr. Johnson said. "The financing of the project, which will amount to nearly $5,000,000, is now in sight and details concerning the undertaking will be announced within the next few weeks.

Will Use TVA Power

"The mill will be situated in the Tennessee valley, within 100 miles of Chattanooga, and will use TVA power.

"The Southern Newspaper Publishers' association is not sponsoring this organization, but is interested in encouraging this and other organizations of the right kind desiring to manufacture paper from southern pine."

The first such plant was sponsored by the S.N.P.A. and is located at Lufkin, Tex.

The second now being organized is known as the Tennessee Valley Paper Mills, Inc., and is to be located at Savannah, Tenn. Former Gov. Gordon Browning and associates are interested in this enterprise. Mercer Reynolds and C. D. Little, of Chattanooga are directors in this new company and the Hamilton National bank, of Chattanooga, is trustee.

Survey for Mill in Arkansas

Mr. Johnson said he understood an Arkansas group is now making a survey in that state, with the view of building a southern pine paper mill there. He said there are at present eighty-one paper mills in the south, but that of this number, only one plant is producing newsprint.

U. S. Paper Exports Set New High

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 3, 1940—The United States exports of paper and its manufactures in January, valued at $4,164,065, set a new high, being the highest since February 1921, according to the Department of Commerce. The successive increase in the exports of paper and its manufactures in recent months is a direct result of trade diversion by South American countries because of conditions in Europe. The main increases in exports have been in those products which South American countries formerly obtained from European sources and the increases have been to those South American countries which heretofore had depended upon European sources of supply. Exports of paper base stocks valued at $1,059,719, were triple the corresponding exports in January 1939.

Imports of wood pulp, aggregating 262,171 tons valued at $10,125,331, were 11 per cent higher in January than in December 1939, 54 per cent higher than the value of wood pulp imported in January 1939 and 79 per cent higher than in the corresponding month of 1938.

Imports from Finland during January, totaling 41,885 tons, were 7 per cent lower than in December, but were 70 per cent above imports from Finland in January 1939. Imports from Norway, totaling 10,236 tons in January, were 1 per cent higher than in the previous month and 53 per cent above imports in the corresponding month of 1939. Wood pulp imports from Sweden, totaling 144,111 tons in January were 52 per cent higher than in the previous month and were 62 per cent above imports from Sweden in January 1939. January imports from Canada, totaling 62,835 tons, were 14 per cent below December imports and 38 per cent higher than corresponding imports last year.

I. P. & P. Co. Reports Net of $4,893,590

This Compares With $124,075 In 1938 — Tonnage Sales For the Year Were 27 Per Cent In Excess of 1938— The Subsidiary Companies Produced 1,877,137 Tons of Paper, Pulp and Bags and 1,550,356 In 1938.

Richard J. Cullen, president, in submitting the eleventh annual report of the International Paper and Power Company for the year ended December 31, 1939, made the following statement in part to shareholders:

Earnings and Dividends

For the year 1939 consolidated net profit of International Paper and Power Company and subsidiaries amounted to $4,893,590 as compared to $124,075 in 1938. Tonnage sales for the year were 27½ per cent in excess of 1938.

The regular dividend of $1.25 a share for the first quarter of 1940 on the Company's outstanding Cumulative Convertible 5 per cent Preferred Stock was paid March 30, 1940. The last previous dividend was on December 10, 1937, when $2.50 a share was paid. At March 31, 1940, the undeclared cumulative dividends amounted to $12.50 a share.

Taxation

During 1939, the companies set aside for taxes—local, state, federal and foreign—a total of $3,808,970. This is equivalent to $4.11 a share on the outstanding preferred stock.

This total includes property taxes, social security taxes and other taxes not based on income amounting to $2,993,709 as compared to $2,797,683 in 1938.

Foreign Exchange

Following the outbreak of war in Europe, the value of the Canadian dollar and the pound sterling declined sharply in terms of United States dollars. The major part of the sales of the Company's foreign subsidiaries are made in terms of United States dollars while their expenses are incurred in foreign currencies. In accordance with past practice, both sales and expenses of foreign subsidiaries have been stated in the 1939 consolidated profit and loss account at $4.85 for the pound sterling and $1 for the Canadian dollar and all profits or losses on actual exchange transactions (including provision of $346,002 for the net loss on forward commitment contracts made prior to the establishment of the Canadian Foreign Exchange Control Board) have been reflected in current operations.

In the consolidated balance sheet at December 31, 1939, net foreign working capital has been converted into equivalent United States dollars at the official rates in effect at December 31, 1939 resulting in an adjustment of $1,774,976 which has been charged directly to consolidated earned surplus.

Under the general regulations of the Canadian Foreign Exchange Control Board, the Canadian subsidiaries may not pay any principal of indebtedness owing to the Company or its domestics subsidiaries at September 30, 1939. However, they may, with the permission of the Foreign Exchange Control Board, repay intercompany advances made subsequent to that date and pay interest accruing after September 30, 1939 if earned, and distribute any net profit arising after that date. The rules and regulations adopted by the Foreign Exchange Control Board are subject to change at any time and it is not known what further restrictions may be imposed. In March, 1940, the Exchange Control Board granted special approval for payment by a Canadian subsidiary of $1,170,796.79 in Canadian funds on the principal of its indebtedness to International Paper Company existing at September 30, 1939, and also approved payment by Canadian subsidiaries of $1,300,000 in Canadian funds representing a portion of interest and net profits arising since September 30, 1939.

Financial Position

During the calendar year 1939 the companies made a net reduction of $6,233,401 in their funded debt. Of this amount $5,208,563 represented reduction in long term debt and $1,024,838 represented reduction in funded debt maturities payable within the year and classified in the balance sheet under current liabilities. At December 31, 1939, total funded debt (excluding amounts on which subsidiaries of International Hydro-Electric System have agreed to pay interest, sinking funds and principal) amounted to $62,544,610. Of this amount $3,693,132 matures in 1940 and is classified under current liabilities.

Effective as of July 14, 1939, International Paper Company redeemed at par its $12,933,495 then outstanding sinking fund notes held by banks and sold at par a new issue of $13,000,000 secured notes to the same banks. This refunding operation resulted in extension of maturities and a saving in interest. The new notes mature serially in varying amounts at six months intervals from December 30, 1939 through December 30, 1944. Interest rates vary from 1½ per cent on the first maturity to 4¼ per cent on the last two maturities, averaging 3.75 per cent over the life of the issue. In addition to regular serial maturities, a sinking fund based on consolidated earnings of International Paper and Power Company is provided to retire up to $1,500,000 principal amount of notes yearly. The notes due December 30, 1939 amounting to $1,000,000 were paid off at their maturity. An additional $2,375,000 of these notes are scheduled for retirement at maturities and by the sinking fund during 1940, representing the major item of funded debt maturities payable in 1940.

During the year 1939 there was a gross increase in consolidated net working capital of $3,717,137 as shown in the Consolidated Summary of Financial Operations. However, the adjustment of $1,774,976 made to convert foreign working capital into equivalent United States dollars was applied against this, so that the net increase in consolidated working capital was $1,942,161.

Operations

Production of paper and paperboard in the United States reached a new high level in 1939. Preliminary figures for 1939 indicate that such production exceeded 1938 by 18 per cent and 1937, the previous high year, by 5 per cent. During the first eight months of 1939 the paper industry, in line with gradually increasing general business activity, operated at well above the corresponding months of 1938. Starting in September there was a marked further increase in activity. In October and November the industry operated at virtual capacity with only the normal seasonal slackening in December. Some advances in prices were made to cover rising costs.

Production in the United States of container board made a new high record in 1939, advancing 21 per cent over 1938 and 6 per cent over 1937, the previous high year.

North American newsprint paper production in 1939 was 11 per cent over that of 1938 but 17 per cent under the high record of 1937 when newspaper publishers were accumulating paper in anticipation of a price increase. Consumption of newsprint paper in the United States in 1939 was 3 per cent over that of 1938 and 7 per cent under the record established in 1937.

During 1939 the subsidiary companies produced a total of 1,877,137 tons of paper, pulp and bags as compared with 1,550,356 tons in 1938 and 1,933,928 tons (excluding production of the Newfoundland subsidiary which has since been sold) in 1937. The tonnage figures by grades in 1939 and 1938 compare as follows:

	1939	1938
Kraft Board	509,287	404,087
Kraft Paper	218,554	192,405
Bleached Kraft Paper and Board	80,667	48,170
Total Kraft Paper and Board	808,508	644,662
Newsprint	436,145	415,986
Groundwood Specialties	171,567	137,406
Book and Bond	121,167	91,762
Sulphite Pulp	146,683	107,434
Other Pulp for Sale	44,991	19,583
Other Paper Mill Products	43,168	34,109
Bags *	79,694	75,943
Other Converted Products *	25,214	23,471
Total	1,877,137	1,550,356

* These products are manufactured for the greater part from paper and pulp produced at other mills of the company and included in the above production figures.

In April 1939 Southern Kraft Corporation started the bleached unit of the Springhill mill, with a capacity of 45,000 tons a year, manufacturing bleached kraft paper and board of the grades used for milk containers, folding cartons for food products, food pails, paper food cans, paper plates, file folders, tag paper, index bistol board, etc. This is the first time these papers have been successfully produced from 100 per cent bleached kraft pulp on a Fourdrinier machine. This unit has been in full production since August 1, 1939. In September 1939, the unbleached unit went into full production of board and pulp at the rate of 600 tons a day.

Canadian International Paper Company and Masonite Corporation have formed the Masonite Company of Canada, Ltd. which has constructed a new mill at Gatineau, Quebec, for the manufacture of Masonite hardboard products. The new mill's production is for sale in Canada and export markets other than the United States. The capital stock of Masonite Company of Canada, Ltd. is owned 50 per cent by Masonite Corporation and 50 per cent by Canadian International Paper Company. The mill, which has a capacity of approximately 35,000,000 feet a year, started operations on February 15, 1940 and is to start distribution during the month of April.

No other new mills were constructed during 1939. The amount invested during the year in plants and properties (less sales and retirements) was $2,123,257 as compared to $8,579,303 during 1938.

Exemption from Public Utility Holding Company Act

On April 26, 1939 the Securities and Exchange Commission issued an order declaring that neither International Paper and Power Company nor International Paper Company is a holding company within the meaning of Section 2 (a) (7) (A) of the Public Utility Holding Company Act of 1935. This order establishes that neither company has any obligations or duty under that Act as a holding company.

As stated in the annual report for 1938, the common shares and Class B shares of International Hydro-Electric System, all of which were owned by the Company and International Paper Company, have been transferred to Liquidating Trustees, together with the entire outstanding capital stock of two small subsidiary companies. The Olcott Falls Company and Oconto River Power Company, as well as certain indebtedness of The Olcott Falls Company.

During the year endeavours have been made to develop offers for the purchase of the trusteed assets. The Trustees have mailed letters to a wide list of possible purchasers regarding the proposed sale of the trusteed assets and discussions have been carried on with such of these as have expressed interest. The properties of Oconto River Power Company have been sold for a cash consideration of $90,000.

Finnish Paper Situation

As the new territorial boundary between Finland and Russia is not yet clearly defined, the loss to Finland's pulp and paper industry is not definitely known. The latest estimate of the United States Department of Commerce is that eleven mills are now in Russian territory. In a statement commenting on the situation R. S. Kellogg, secretary of the Newsprint Service Bureau, stated: "It seems certain that only one news print mill of approximately 20,000 tons annual capacity is in the territory taken by Russia. This is the mill of the Kymmene Company at Läskelä, north of Lake Ladoga as indicated on the map.

"The port of Viipuri occupied by the Russians has been an important shipping point for Finnish pulp but not so much so for paper. The bulk of the Finnish news print has always been exported from the ports of Kotka, Turku, Helsinki, Pori and Rauma.

"The manager of Finska Pappersbruksföreningen —The Finnish Paper Mill Association—informs us that none of the news print, board and kraft mills, members of that organization, are affected by the new boundaries, and that their machines are intact. He says that it will take a few weeks to reorganize transportation facilities in Finland, as the railroads are now occupied with the evacuation of people and goods from the ceded areas. It will also take some little time for the unusual ice conditions in the Baltic to clear up. All mills are expected to resume full production and shipments as soon as these conditions permit."

Thilmany To Open Converting Department

Former Kaukauna Plant of Union Bag & Paper Co. To Be Used By Thilmany Pulp & Paper Co. As Converting Department — Winter Series of Safety Meetings End — Unemployment Insurance Law Is Modified.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., April 1, 1940—Remodelling and renovation of the former Union Bag and Paper Company mill at Kaukauna, Wis., has been completed, and it will be occupied soon by the converting department of the Thilmany Pulp and Paper Company. The building is owned by the Green Bay and Mississippi Canal Company and was leased to Thilmany. Construction work was done by C. R. Meyer and Sons Company, Oshkosh, Wis.

All of the old frame buildings on the property, and the boiler house and huge stack were razed, and the area has been filled in and levelled for parking and trucking. The old flume and the basement were filled to a level three feet higher and concrete floors were laid. New hardwood flooring was laid on the other floors, a new roof was constructed over the former machine room, and new doors, windows and fire doors were added.

The basement will be used for pulp and paper storage, and the remaining space will house most of the converting department. Equipment is to be moved in so the plant will be ready for operation within the next few weeks.

Employees celebrated completion of the building with "open house" last Saturday evening. Families of the workers and the city officials of Kaukauna were guests. A brief program was held with C. R. Seaborne, general superintendent, as chairman, and dancing, cards and other games followed. L. C. Smith, personnel director, was in charge of arrangements.

Kimberly-Clark Bridge Nearly Finished

The $20,000 bridge under construction by Kimberly-Clark Corporation, Neenah, Wis., is nearing completion. The abutments and foundation work have been finished, and concrete will be poured this week for the deck. A roadway and sidewalks also will be built of concrete, and guard rails will be installed.

The span is about 100 feet long and 24 feet wide, with 5-foot walks on each side. The retaining walls along the Fox River canal have been built to permit backfill ranging from 20 to 60 feet, providing a large additional area for parking cars.

This bridge was a preliminary to construction of a new machine room between the Badger-Globe and Neenah mills so as to provide an additional outlet for trucking, and access for employees' cars, relieving a present "bottle neck" on the busiest traffic street in Neenah.

Winter Series of Safety Meetings End

The final safety meeting of a winter series conducted by the paper mills and allied plants of Neenah and Menasha, Wis., was held Tuesday evening of last week at the high school auditorium at Neenah. Charles Milton Newcomb of Delaware, Ohio, gave the principal address. Although it was mostly humorous, it was full of barbs and admonitions along safety lines, especially in overcoming fear, one of the great contributing causes of accidents. Kimberly-Clark Corporation band furnished a concert, and the general chairman was John C. Simonich, of Kimberly-Clark.

Five sectional meetings preceded the general session. Dan Howman of Kimberly-Clark was chairman of the general maintenance, construction, electrical and power group and the speaker was Ray Kivell of C. R. Meyer and Sons Construction Company, Oshkosh, Wis., subject, "Construction." A. J. Forsyth, chief safety engineer for the Continental Casualty Company, Chicago, spoke at the transportation, materials and handling section on "Safety and Transportation," with Morgan Wheeler, Wheeler Transportation Company, as chairman.

The manufacturing and converting section had as its speaker Forrest Werling, Kimberly-Clark, on the subject, "Machine Room Hazards," and the chairman was Melvin Redlin, Neenah Paper Company. T. H. Allen, safety engineering manager, Hardware Mutual Casualty Company, Stevens Point, talked on "General Hazards in the Printing Industry" at the sectional session on printing, with Frank Hammett of George Banta Publishing Company as chairman.

John Catlin, Kimberly-Clark, spoke on "Women in Industry" at the women workers' sectional meeting, with Kay Kuchenmeister of Kimberly-Clark as chairman.

Cooperation in conducting the safety series was given by the vocational schools of Neenah and Menasha and the Wisconsin Industrial Commission. A. C. Haselow, of Gilbert Paper Company, was general chairman of the series.

Modified Unemployment Insurance in Effect

Modifications of the Wisconsin unemployment insurance law went into effect April 1, giving workers a two weeks' waiting period instead of three after layoffs before applying for compensation, and the lengthening of the period during which benefits can be collected. Thus, under the old law, the worker was entitled to one week unemployment compensation to every four weeks of employing during the previous year. If he received a check of $15 per week in unemployment compensation—the maximum—and he had worked for thirty weeks, he would receive his $15 weekly check for seven and one-half weeks. Under the new law, he would receive checks for ten weeks.

During 1939, most paper mills in Wisconsin withdrew less than 10 per cent of their contributions, according to reports of the Wisconsin Industrial Commission, revealing a relatively stable status of employment. Contributions in Wisconsin are made on the "merit rating" system, by which an employer who maintains a stable condition of employment need make no further contributions when the fund on deposit reaches a certain point. Two thus far have built up adequate reserves and have eliminated contributions.

Out of 96 mills coming under the law, two others

are paying the maximum of 3.2 per cent of payrolls. Twenty-four are contributing at the standard rate of 2.7 per cent. The other sixty-six have accumulated a sufficient reserve so their contributions are reduced to one per cent.

During 1939 the total of contributions received from all industries in the state was $14,000,000, while the withdrawals for unemployment compensation were $3,663,572. It is expected this ratio will encourage further liberalization of benefits to workers when the Legislature convenes next year.

Since the law went into effect, paper mills have given considerable study to their stabilization problems. Thilmany Pulp and Paper Company, Kaukauna, Wis., arranges for transfer of employees between departments with the end of reducing layoffs to a minimum, thus conserving reserves and decreasing the rate of contribution. Whiting-Plover Paper Company, Stevens Point, Wis., has arranged to plan production more carefully in order to make employment more regular, and has definitely succeeded in accomplishing results.

Among the allied industries, Appleton Woolen Mills, Appleton, Wis., has centralized control of employment and production, and is able to know in slack times to whom employment should be given and how much, both in hours and in value. This provides a steadier income, averaging much higher than the spasmodic employment plus benefit payments. Neenah Foundry Company, Neenah, Wis., has stabilized employment so there has not been a single layoff.

Dr. Winslow Explains New Process

Dr. Carlile P. Winslow, director of the United States Forest Products Laboratory, Madison, Wis., explained a new method of producing newsprint at the National Farm Chemurgic Conference in Chicago last week. The method utilizes southern gum semi-chemical pulp with pine groundwood. Newsprint made by this process on a laboratory scale, he said, equalled average commercial newsprint. It is cheaper than the process used at Lufkin, Texas, in the first southern newsprint mill, and in addition enhances the prospect of a greater and more profitable use of farm woodlots in the South. Red and black gums constitute a major group among southern hardwoods, Dr. Winslow said.

Mill Robbery Solved

Theft of $2,100 worth of paper machine equipment from the Neekoosa-Edwards Paper Company, Port-Edwards, Wis., has been solved with the arrest of three young men, Alvin Halbur, Henry Halbur and Ray Kedrowski. The loot was mostly copper, brass and bronze. The culprits have been bound over for trial.

R. U. Landreman Granted Certificate

R. U. Landreman, auditor of the Fort Howard Paper Company, Green Bay, Wis., has been granted a certificate as certified public accountant by the State of Wisconsin. He is a graduate of the school of business administration of Marquette University, Milwaukee, Wis.

Murphy-Wright Engagement

James Murphy of Appleton, Wis., who has been employed with Kimberly-Clark Corporation at Niagara Falls, N. Y., and Miss Nancy Wright of Niagara Falls, announced their engagement last week. They will be married late in the summer. Mr. Murphy is a graduate of Swarthmore College, Penna.

Indianapolis Demand More Active

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., April 1, 1940—The coming of warmer weather last week seemed to have a stimulating effect on the paper market in this section. The slight improvement appeared to effect most lines and there is little pessimism in evidence. The first quarter finished with a volume comparable with last year, which is considered rather remarkable in view of the fact that weather conditions the first two months were the worst in years.

Demand for building papers and roofing now seems to justify the optimistic predictions made early in the year in spite of getting away to a late start. Dealers now are buying readily and there is every indication that building will equal that of last year in the entire state.

Fine paper demand continues spotty, but shows a gradual increase. There are no disturbing factors in the market and prices are being firmly held. Printers generally report a good outlook.

Buying of summer specialties is getting under way and jobbers report a considerable volume of early buying. Stocks in retail hands carried over from last year, are low and many are building them up. Most jobbers have some good deals to offer, with packaging even more attractive than last year. Cellophane demand also is increasing as is that for waxed paper. Tissues are reported in good demand.

Little change was seen in the paper box field. Demand from the brewery and ice cream trade is increasing, but some seasonal lines have declined. Most local factories are working nearly at capacity, however, and warehouse stocks are low. It is expected the ice cream trade will show a good increase over last year.

The paper and rag stock market is somewhat spotty. Some increase in mill demand for rags was noted this week, but no price improvement was seen in better grade of rags, while some of the lower grades showed weakness. The paper stock situation was unchanged.

Launch Toilet Ad Campaign

GREEN BAY, Wisc., April 1, 1940—Retail dealers will soon receive the greatest promotional and sales support ever offered a toilet tissue it is said when Northern Paper Mills launches its new "Fluff" campaign for Northern and Gauze toilet tissues and supplementary paper products. From coast to coast in daily newspapers and trade journals, on outdoor posters, through samples, dealer displays, broadsides, and portfolios consumers and dealers will soon become aware of the new "made of Fluff" idea.

Dealers will be given support, not only generally through posters and magazines, but directly in their own local market in newspapers and in their own stores.

First, with a preliminary general build-up of national advertising and outdoor posters, and second, when the consumer visits her local store she will be face-to-face with a large sample of "Fluff" on display.

In addition to the various black and white newspaper ads which will flood every market, several large full page four-color ads will run in special section of leading papers.

Conference Discussed Production Costs

Paper and Pulpwood Interests Meet With Lumbermen At Toronto To Evolve Some Plan To Reduce Present Production Costs To Competitive Level of Scandinavian Producers — Dryden Mill Running At Capacity.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 1, 1940—There was held in Toronto a conference of lumbermen, paper producers and pulpwood men along with allied interests in regard to more effective utilization of the forest resources of the province. The gathering was called by the Hon. Peter Heenan, Minister of Lands and Forests. Nearly two hundred loggers, lumbermen, foresters, sulphite manufacturers, representatives of railways, labor unions, transportation and electric interests attended. The main object of the representatives of the industry was to evolve some plan whereby production costs could be reduced to a competitive level with those, for example, of the Scandinavian producers. Mr. Heenan said that from his experience with labor he was confident that if it was assured of a continuity of employment rather than short seasonable effort, its representatives would be prepared to ease their demands on industry. Mr. Heenan added that every branch of the industry dealing with national resources should be prepared to adjust itself in order that Ontario might be able to compete both in quality and price. With its geographic location, the great wealth of forest assets, water power, developed and undeveloped, Ontario should be able to compete in world markets. He said that it might be advisable for the industrial and transportation companies to study the rates structures to determine if the people in Ontario are handicapped in comparison with other countries as well as other parts of Canada.

Mr. Heenan pointed out that labor men in the province of Ontario had always been reasonable but they wanted security of employment over a greater part of the year rather than working half time or for a few months.

Labor Willing to Cooperate

J. P. Nicol, of the International Brotherhood of Paper Makers declared that labormen were willing to cooperate. Labor had had as hard a time as the companies and the companies were not hit harder than the workingmen. Some members of the union had worked only three or four days a week and the future looked black.

Malcolm Cochran, of Port Arthur, who is the Canadian representative of the Hammermill Paper Co., of Erie, Pa., said that the pulpwood export business was as much benefit to Ontario as the work done in the woods. He pointed out that this export business brought five million dollars to Ontario and two million eight hundred dollars was paid out in wages.

Several committees were appointed by the different sections of the gathering who will draw up reports to present at another conference to be held within a month.

Dryden Mill Operating at Capacity

The demand for kraft paper output of the Dryden Paper Company, Limited, Dryden, Ont., continues to the extent of the entire capacity of the plant, a condition that developed a short while after the outbreak of hostilities in Europe. The market for the company's paper is almost exclusively in Western Canada but inquiries have been coming in steadily from several countries where the dislocation of normal shipping has been interfered with by supplies from the usual sources. The surplus sulphate pulp of the Dryden Company is also finding a market for almost one hundred per cent with the advantage this year of considerably higher prices.

Work Starts on New Morgan Plant

Work is being started on the construction of a new plant for the Morgan Paper Company, Toronto. The company make paper boxes, containers, etc. Plant additions are being made to the Acme Paper Box Co., and the Queen City Paper and Twine Co., and it is expected they will be completed early in May.

Business Good for Gair Company

George W. Brown, president of Gair Company, Canada, Limited, reports that operations for the first two months of this year have been satisfactory and demand for paper board for export continues strong. He says that increased taxes due to the war may unfavorably affect earnings. The Gair Company, Canada, and subsidiaries report that during the first eight months of 1939 operations showed a small profit. Following the declaration of hostilities there was a marked upturn, domestic and for shipment for England. This not only put all operating units on full time production but necessitated putting in production of the paperboard machine at the Dominion Boxboards division, Toronto, which had been closed down since 1937. As a result profits materially improved. Net sales in Canada were $4,166,386 including those of subsidiary companies acquired during the year. Net profit from operations before Dominion and Provincial Income Taxes was $251,582. After deducting income taxes of $66,142, profit was $185,-440. Production of paperboard (exclusive of subsidiaries) was 39,415 tons, 16,322 tons sold to customers and 23,093 tons fabricated.

Filtration Engineers Reorganized

At the twenty-first annual meeting of the Stockholders of Filtration Engineers Incorporated, a complete stock (financial) reorganization was effected. Thomas C. Stephens was re-elected president, George H. Caffrey was re-elected vice-president and Louis A. Phillips was re-elected treasurer.

These officers, together with Mr. Thomas Keogh and Mr. Frank W. Young, comprise the new board of directors.

Mr. Keogh, an internationally known attorney, replaced Harris E. Skinner as secretary.

Frank Young, one of the incorporators of Filtration Engineers Incorporated, is well known in filtration and industrial circles and for the filter improvements he has patented in recent years. He will act in an advisory capacity to the board.

CanadianNewsprintIndustryMuchImproved

Sharp Betterment In Position of Canadian Newsprint Industry In First Quarter of Year Basis For Expectation That 1940 May Prove Best Year In Long Period—New Markets For Canadian Paper—Other Mill News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., April 1, 1940—A sharp betterment in the position of the newsprint industry for the first quarter of the year, as compared with the similar period of last year, gives solid basis for expectation that 1940 will prove to be the best year that the industry has experienced over a long period. Competent judges have expressed the opinion that the industry will operate at close to 75 per cent of capacity for 1940, and that on this basis, the earnings of leading companies will be approximately as follows:

Abitibi 1.4 times interest, $2.85 on preferred, nil on common; Consolidated 1.7 times interest, 83c on common; Great Lakes 3.0 times interest, $2.70 on preferred, 70c on common; Lake St. John 3.1 times interest, $26.93 on preferred, $3.77 on common; Maclaren $2.03 on common; Price 4.7 times interest, $36.78 on preferred, $3.59 on common; and St. Lawrence Paper Mills $10.25 on preferred, $1.17 on common.

In this connection it must be borne in mind, of course, that the final operating results will be determined largely by the margin of profit under which each mill operates and that costs of production are affected by intangibles, such as efficiency of management, etc., which are not susceptible of statistical analysis. Many of these companies have sources of earnings other than newsprint, allowance for which has not been made in this study. It has been assumed that some reduction in cost of production would result from an increase in operating rates.

Exchange is an important factor that is taken into consideration. Approximately 80 per cent of the Canadian newsprint production is paid for in Canadian funds, on which a premium of at least $4 per ton at present prevails.

New Markets for Canadian Paper

R. P. Bower, asssitant Canadian Trade Commissioner at Sydney, Australia, in a report to the Department of Trade and Commerce, says there are better opportunities for the sale of certain types of Canadian paper in Australia now than have existed before. Supplies from Germany and German-occupied countries have ceased entirely, he says, while deliveries from Scandinavian countries are uncertain, due to hostilities. Australian importers are prepared to pay more for Canadian papers than for Scandinavian or English, because of the relative certainty of regular arrivals.

While a portion of the displaced lines will be taken up by countries which are not likely to be greatly influenced by the war in Europe, "it is to Canada that the bulk of the users are turning for future requirements," states Mr. Bower.

War conditions have created an opportunity for Canadian paper mills. With the increased volume of trade they may obtain in the Australian paper market, reductions in costs are possible which may make Canadian papers more competitive with European types when conditions return to normal.

Canada has secured practically the entire newsprint field for the time being under a long-term contract, so that it is in other paper types that the principal interest lies, says Mr. Bower.

Sharp Increase in Bathurst Earnings

As showing the general trend, a statement by R. L. Weldon, president of the Bathurst Power and Paper Company, at the annual meeting of that concern, is significant. He said that the net earnings of the company for January and February amounted to $101,000, including $18,000 earned from exchange, after provision for depreciation, depletion and income taxes, and he added that the earnings for March would be equally as favorable as for the first two months. This compares with a loss of $60,000 after depreciation and depletion, in the first quarter of 1939.

At a meeting of the board held subsequent to the annual general meeting a dividend of 25c on the Class A stock was declared, payable May 1, record April 17.

The officers of the company, Messrs. R. L. Weldon, president, P. A. Thomson, vice-president, H. J. Webb, vice-president and secretary-treasurer, G. A. Schryer, assistant treasurer and F. D. Lamont, assistant treasurer, were re-elected.

Now Stilwell-Minneapolis Co.

Believing that a more specific corporate name will better identify the organization and prevent confusion in trade circles, officers of the Minneapolis Paper Company, 400 South Fifth street, have changed the name to Stilwell-Minneapolis Paper Company, effective immediately. In an announcement, E. C. Prewitt, president, stated that the change is also in tribute to the late E. J. Stilwell who founded the wholesale paper firm in 1889 and served as its head for over four decades.

The company's general offices and warehouses have always been located in Minneapolis.

Executive officers of the firm are E. C. Prewitt, president and treasurer; H. C. Rogers, vice-president and general manager; and W. F. Smith, secretary. A. B. Carlson directs the fine paper and mill department; Howard Canis, school supplies and wrapping papers; W. J. Casey is superintendent of the manufacturing department. All of these men have been affiliated with the organization for many years. Seventy employees are on the Stilwell-Minneapolis Paper Company payroll, according to Mr. Prewitt, and the company starts its 51st year in the wholesale paper field with plans completed for handling substantial sales increases in all departments.

This change does not affect the E. J. Stilwell Paper Company of St. Paul, Minn., a company founded by the late E. J. Stilwell as a distinct and separate corporation.

Firmer Paper Market Looked For In Chicago

Slight Increase In Activity Reported In Midwest Territory For Newsprint and Groundwood Papers With Sulphite Papers More Active and Demand For Kraft Paper Little Changed — Discuss Revised Tax Rule.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., April 1, 1940—The local paper industry continues to await the long expected buying upturn which "must come" because of higher raw material quotations as well as increased business expenses. Improvement has not been marked in the area as general business has shown many signs of "presidential year" hesitancy. Yet Chicago paper executives point to the higher pulp costs, the unfavorable developments arising from the Finnish situation and high costs of operation as more than sufficient reason for increased demand from buyers who appreciate the exact situation.

There are other local factors which lead to the belief that markets must firm up materially such as inquiries from large buyers and a slight increase in activity in certain lines. Newsprint and groundwood offices here reported demand and general activity on the upgrade and there were indications that the sulphite market was also moving into more active ground. Kraft papers were little changed though there is every evidence to support the contention that the next moves must be materially upward. Books and covers were reported as somewhat "slack." Paper board showed a bit more activity with an improved building situation at hand. Waste papers continued comparatively weak with April 1 prices showing a trend downward.

Harold Knott Resigns

Harold Knott, western sales division manager of the Eastern Corporation, resigned last week and has not as yet announced specific plans for the future. Mr. Knott was with the Eastern Corporation for over twenty years and is widely and favorably known in the paper trade. John E. Massengale, formerly with the Burgess Envelope Company, has accepted the position as district manager of the Eastern Corporation after interviews with Robert C. Clark, vice president and sales manager of the Eastern Corporation, who has been in Chicago for the past few days assuming temporary management of the Conway building headquarters. No other changes are reported in the Chicago sales offices with George Craft continuing as sales representative in this area.

Discuss Sales Tax Rule

Revised Article 5, issued by the Department of Finance of Illinois and covering interstate shipments and their liability under the Retailers Occupation Tax, continues to be one of the debatable subjects in this area. Effective April 1, the revised article is considered to be a "trade barrier" which may have serious consequences in the "manufacturers representative" field. It is believed that the article means the State will have the right to collect the 3 per cent sales tax from firms shipping from outside the State if the transaction takes place in Illinois and if the State has any method of enforcing collection within the borders of the State itself. In other words, regardless of point of origin outside the State and without regard for f.o.b. sources, representatives of mills outside Illinois will have a hard time dodging tax liability if they would otherwise be under the provisions of the statute.

Recommendations for Food Containers

The Division of Simplified Practice at Washington has recently distributed mimeograph copies of Simplified Practice Recommendations for Heavy Duty round, nesting paper food and drink containers and lids. The Standards Committee of the Cup & Container Institute, Inc., drafted the proposals and requested the National Bureau of Standards to submit them to all interested parties for consideration. The recommendations includes standard containers covers shapes, capacities, weight per 1000 containers —waxed and unwaxed—and other data which will be of interest to the supply field.

Sydney Roofing Starts New Plant

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., April 1, 1940—Replacing the previous plant destroyed by fire last fall the Sydney Roofing and Paper Company's new premises have now commenced production. The new plant at Victoria B. C. was recently formally set in operation when the Mayor pulled the main switch that started machinery humming. The ceremony took place in the presence of about fifty prominent figures in business, industrial and governmental circles in B. C. R. W. Mayhew, general manager and president and R. Logan Mayhew, assistant manager, received the guests.

The new plant has a capacity of 10 tons of pulp per day, all of which is used in other sections of the company's operations for the production of roofing, felt manufacture and paperboards. Arthur Sanders, member of the staff of the company, laid out the new pulp plant, and John Dooley, company electrician, installed the 500 h.p. motor and electrical equipment. The plant will operate under direction of Mitchell Thom, general superintendent, who has been with the company since he returned from overseas in the last war.

The new mill has been viewed to provide for future expansion of the Sydney company. It is now equipped with one grinder, but there is room for the installation of three more. The mill building is 100 by 60 feet and "fiberrock" insulating board manufactured by the company was used extensively in its construction.

The company has also opened a new 175 x 50 permanent warehouse of concrete and steel construction at a cost of $16,000. A new 200 h.p. boiler is also being installed in the plant at a cost of $11,000.

The company is also planning to put in a new screen room with four new screens and to rebuild the felt-making machine with a view to increasing production. Total outlay for the work now under way is approximately $65,000.

United Kingdom Orders Control of Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 3, 1940—Following is Order No. 8 of the United Kingdom dealing with the control of paper:

"The Minister of Supply has issued the Control of Paper (No. 8) Order, 1940 under which paper produced in the United Kingdom will be rationed in order to conserve shipping and currency in respect of the importation of papermaking materials as a contribution to the national effort in prosecuting the war. This order, which comes into force on the 12th February, 1940, provides that no producer of paper shall, in the period 3rd March, 1940 to 1st June, 1940 (referred to as the license period) deliver to any person more than 60 per cent, of the weight of paper delivered to such person in the period 1st March, 1939 to 31st May, 1939 (referred to as the reference period) except by special or general direction or under a license issued by the Minister of Supply. This restriction applies also to deliveries by producers of paper to their own converting plants. It does not apply to paper exported directly by producers for or to paper delivered and invoiced by the producer to any Government Department. Hand made paper, i.e. paper made by hand in a hand shaken mould is exempt from the provisions of the Order.

"Consumers and merchants who require additional supplies of paper either for essential purposes or to fulfill a contract in writing entered into before the 3rd February, 1940, should complete the appropriate forms (L.1. in the case of (a) convertors and (b) merchants' orders of 5 tons or over for direct delivery to customers; L.2. in the case of merchants supplies for delivery ex-stock or small making orders of less than 5 tons; N.6 in the case of neysprint). These forms may be obtained from the paper producers. On completion of these forms they should normally be sent to the producer from whom supplies of paper were obtained during the reference period who will forward them to the Controller of Paper with an indication of what additional quantities he is prepared to supply. The Controller will then determine what additional quantities, if any, may be supplied and will furnish the producer with a licence to supply at the same time notifying the consumer or merchant. Any additional supplies which may be authorized must only be used for the purpose specified in the application. The Controller of Paper will be prepared to receive applications for licenses on or after the 12th February 1940.

"The essential purposes for which applications for licenses for additional supplies will be considered can be broadly stated as follows:

(a) paper required in connection with the production, packing and wrapping of commodities manufactured under direct Government contracts;

(b) packaging and wrapping of essential foodstuffs;

(c) packaging and wrapping of goods for export;

(d) essential requirements of industries primarily devoted to the prosecution of the war;

(e) the production of books and other necessary publications, particularly for the export trade.

"Applications for licenses will also be considered in certain other circumstances as follows:—

(a) where the consumer or merchant did not acquire any paper during the reference period from his present source of supply;

(b) where supplies are required to replace paper hitherto imported.

"While every endeavor will be made to meet these requirements it will be necessary to limit the amount of paper used in packaging and wrapping to the minimum amount required for the transport of commodities in sound condition and it is expected that in many cases the high standard of packaging and wrapping hitherto observed will have to be drastically reduced.

"As regards contracts for the supply of paper between producers and their customers (excluding merchants) and between merchants and their customers, consideration will be given to the authorization of supplies in excess of the 60 per cent, ration in the case of contracts entered into in writing before the 23rd January, 1940. As regards written contracts entered into between the 23rd January 1940 and the 2nd February, 1940, consideration will only be given in special cases where it is deemed essential in the circumstances to afford special facilities for the fulfilment of such contracts. The mere existence of a contract entered into on and after the 3rd February, 1940 will not in itself afford any grounds for consideration of an application for additional supplies.

"Rationing of paper will continue to be enforced after the 1st June, 1940, and details of the appropriate Orders will be issued towards the end of the first license period. No undertaking can be given that, in subsequent license periods, licenses for additional supplies of paper will be authorized merely because a contract in writing is in existence.

"For the purpose of this order paper is defined as follows:

" 'Paper' includes all descriptions (whether homogenous or laminated) of paper, paperboard, pulpboard, wallboard and fiberboard, which are produced wholly or mainly either from vegetable fibers or a pulp thereof or both from such fibers and such pulp and which have not been converted.

"Attention is also drawn to 'Notice to Importers No. 38 which has been issued by the Board of Trade announcing that from the 3rd March, 1940, imports of paper and board and certain articles made from paper and board will be permitted only under license.

"All enquiries should be addressed to the Paper Control, Ministry of Supply, Great Western Hotel, Reading."

Discuss Carter, Rice Price List

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., April 1, 1940—The new price-list of Carter, Rice & Co., Corp., a complete new insert for the Carter-Rice Loose-Leaf Price Book, containing current prices up to April 1, 1940, correct information on all warehouse and mill lines, new papers added to Boston and Worcester warehouse stock, and a special section devoted to wrapping paper and twine department, was discussed at a regular sales meeting at the office of the company Saturday morning, with Sales Manager Frank H. Winter presiding.

CONSTRUCTION NEWS

Jacksonville, Fla.—The National Container Corporation, Review and Borden avenues, Long Island City, New York, manufacturer of corrugated paper boxes and containers, has leased a one-story industrial building and adjoining tract of land on Talleyrand avenue, Jacksonville, and will remodel and equip for an addition to local box-manufacturing plant, operated in conjunction with kraft board mill. It is proposed to have structure ready for service at early date.

Camas, Wash.—The Crown Willamette Paper Company, manufacturer of kraft, tissue and other paper stocks, has low bid from L. H. Hoffman, 715 S. W. Columbia street, Portland, Ore., for new four-story addition, about 42 x 175 feet, recently noted in these columns. Erection contract is scheduled to be made soon. Structure will be used primarily for storage and distributing service for paper bag department and other production divisions. Cost reported close to $100,000, with equipment. Company is a division of the Crown Zellerbach Corporation, 343 Sansome street, San Francisco, Calif.

Mount Vernon, Ohio—The Shellmar Products Company, manufacturer of cellophane products, including containers and other specialties, has preliminary plans under way for new addition to plant on West Madison street, to be one-story, 100 x 225 feet, reported to cost over $85,000, with equipment. Main offices of company are at 224 South Michigan avenue, Chicago, Ill.

New Haven, Conn.—New Haven Pulp and Board Company, 259 East street, manufacturer of coated board stocks, news board, chip board, etc., has let general contract to the Dwight Building Company, 67 Church street, New Haven, for one-story addition, about 33 x 155 feet, including improvements in an existing shop building at plant. New structure will be used for storage and distribution. Superstructure will be placed under way at once.

Philadelphia, Pa.—The Crescent Box Corporation, 621 East Erie avenue, manufacturer of corrugated paper boxes and containers, folding boxes, etc., has awarded general contract to the Lauter Construction Company, 1613 Sansom street, Philadelphia, for proposed new addition to plant, previously referred to in these columns. It will be two-story, reported to cost approximately $40,000, with equipment.

Marrero, La.—The Celotex Corporation, 919 North Michigan avenue, Chicago, Ill., manufacturer of insulating board, wall board, etc., has approved plans for new addition to mill at Marrero, near New Orleans, to be one-story, 130 x 200 feet, designed primarily for storage and distributing service. General erection contract has been awarded to the W. Horace Williams Company, Southern Building, New Orleans, and erection will be placed under way at once. Cost reported over $50,000, with equipment. Award for structural steel framing has been made to the E. B. Ludwig Construction Company, 1350 Jefferson Highway, New Orleans.

Elizabeth City, N. C.—The Dare Corporation, organized by Philip S. Cole, 1 Wall street, New York, N. Y., and associates, is concluding negotiations for purchase of tract of about 175,000 acres of timber and waste lands in Dare County, N. C., including a former saw mill and adjoining tract of about 30 acres of land at Elizabeth City. Plans are under way for modernization and improvements in the mill property for conversion for a pulp mill. Proposed to carry out equipment installation at early date. Company will develop part of timber property noted for pulpwood supply for plant, and will install saw mills and other facilities for this purpose.

Sloan, N. Y.—The Sloan Folding Box Corporation, recently organized with capital of $20,000, plans operation of local plant for the manufacture of folding and other paper boxes and containers. Edward S. Maniak, Sloan, heads the company. Vincent J. Januchowski, Buffalo, N. Y., is interested in the company.

Portland, Conn.—The Robert Gair Company, Inc., 155 East 42nd street, New York, N. Y., manufacturer of corrugated boxes and containers, has closed bids on general contract for erection of proposed new branch plant on Airline avenue, Portland, near Middletown, where large tract of land recently was acquired, previously referred to in these columns. Award will be made at early date. New plant will be one-story, totaling about 80,000 square feet of floor space, and is estimated to cost approximately $150,000, with equipment. Mylchreest & Reynolds, 238 Palm street, Hartford, Conn., are architects and engineers.

St. Paul, Minn.—Fire recently damaged part of plant of the Mullery Paper Box Company, 293-95 Como avenue, manufacturer of folding and other paper boxes and containers. An official estimate of loss has not been announced, but is reported as slight. The damage will be replaced.

Elizabethton, Tenn.—The American Bemberg Corporation, 261 Fifth avenue, New York, N. Y., manufacturer of synthetic fiber products, has preliminary plans under way for expansion and improvements in mill at Elizabethton, with installation of equipment for considerable increase in present capacity. Entire project is estimated to cost close to $650,000, and financing is being arranged in that amount.

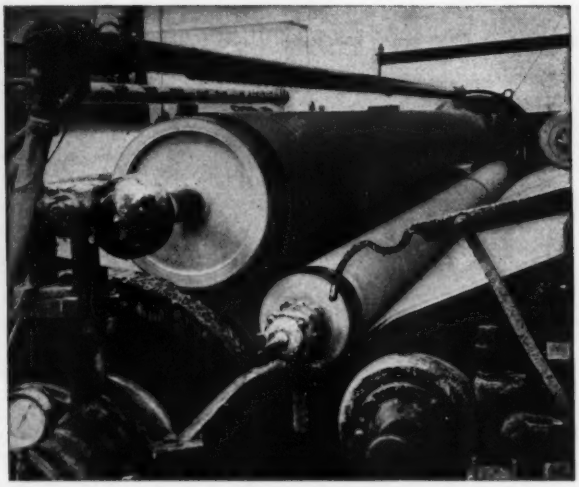
Waycross, Ga.—A. K. Sessions, Waycross, is at the head of a project to construct and operate a local pulp mill, for which it is proposed to have plans drawn at early date. It is reported to cost over $65,000, including equipment. Georgia slash pine will be used for raw material.

Lancaster, Pa.—The Armstrong Cork Company, manufacturer of insulating board and other products, has asked bids on general erection contract, to close April 15, for new one-story addition to local mill, to be equipped as a manufacturing unit. No estimate of cost has been announced.

Millicent, Australia—Cellulose Australia, Ltd., Millicent, South Australia, has plans maturing for new mill at Snuggery, near Millicent, consisting of several one-story units, to be equipped for large capacity. Plant will be given over to the production of cellulose products, and is reported to cost over

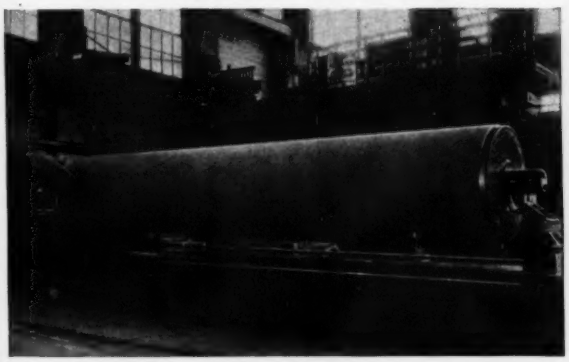
WHAT ARE YOUR SPECIFICATIONS ?

Stowe-Woodward's modern, fully-equipped shop is prepared to produce rubber covered rolls of any size and weight, for any service. May we tell you what we can do on cost and delivery of rolls to your exact specifications.

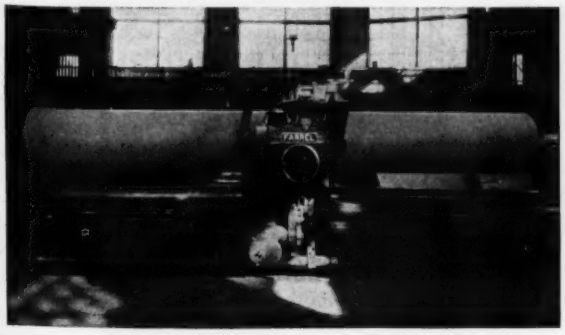


FEATHERLITE Lumpbreaker Roll, 230" long x 16" diameter, 1½" covering.

STONITE Top Press Roll. 238" long x 27½" diameter.



STONITE for Beloit Dual Press. 222" long x 41¼" diameter.



Top Rubber Press Roll. 241" long x 28¾" diameter.

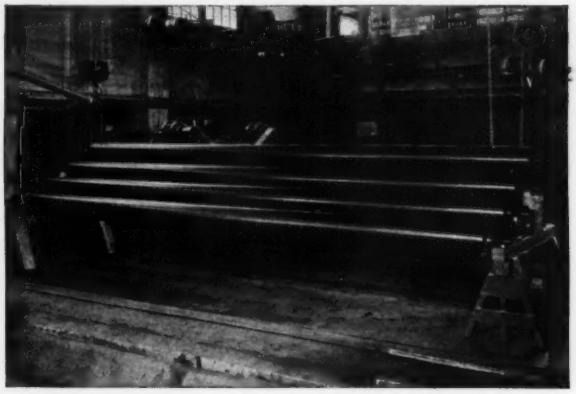


Table Rolls to run on high speed news at 1380 feet per minute. 240" long x 10" diameter.

STOWE-WOODWARD, INC. NEWTON UPPER FALLS · MASS.

NEW YORK OFFICE · WOOLWORTH BLDG.

Stowe-Woodward Rolls are made on the West Coast by HUNTINGTON RUBBER MILLS, INC., Seattle, Washington

Makers of **WHITE STAR** *Rubber Covered Rolls,* **TANNITE** *Couch Rolls*
STONITE *Top Press and Smoothing Rolls—All by the* **COREWELD** *Process*

$500,000, with machinery. About one-half of the amount noted will be used for equipment purchases. Facilities will be provided for employment of more than 200 men. It is expected to begin construction at early date and to complete the project by the end of 1940. The Government is interested in the project and is arranging for the annual planting of large areas with pine trees, to insure raw material supply for the mill. A program of expansion is being arranged following completion of the pulp mill.

New Companies

Jamaica, L. I.—The Rockaway Paper Company, Inc., has been incorporated with capital of $20,000, to deal in paper products of various kinds. New company is represented by Shirley R. Levins, 160-16 Jamaica avenue, Jamaica, attorney.

Chicago, Ill.—The Illinois Calendar Manufacturing Company, 350 West Chicago avenue, has been organized with capital of 200 shares of stock, no par value, to operate a paper-converting plant for the production of a line of specialties. The incorporators include M. Waiss and A. Levy. Company is represented by Alvin R. Katz, 30 North La Salle street, Chicago, attorney.

Reports to J-M Workers for '39

A new "every day arithmetic" which is being developed to dispel the mysteries which industrial workers find in the financial operations of modern-day business, took another stride forward recently when Lewis H. Brown, president of Johns-Manville made his annual report to J-M employees.

Instead of the usual formal report, filled with a bewildering array of figures, Mr. Brown's report makes clear to each worker just exactly how the "J-M Dollar" was spent in 1939. Cartoons portray the "J-M Dollar" as a gnome-like figure, whose adventures explain such mysteries sounding accounting terms as "surplus", "returns and allowances" and "depreciation and depletion". This is the third annual report in which Mr. Brown has simplified the financial operations of Johns-Manville in a form readily assimilated by the industrial workers of the corporation—a form which Mr. Brown has pioneered.

To show exactly what happened to all of the money taken in by the Company during the year, Mr. Brown asks that employees think of the total amount as "just 100 cents"—one dollar—and each cent as one per cent. Then the cartoon shows where each cent in the dollar went; 61 cents for raw materials, selling and production expenses; 32 cents for wages and salaries; 5 cents for stockholders dividends; and "2 cents was set aside for the financial safety of jobholders and stockholders".

Included in this report for the first time is a "quiz" department in which Mr. Brown answers clearly such controversial questions between capital and labor as "Do the stockholders get too much profits?"; "If the officers of the Corporation weren't paid such big salaries wouldn't the employees be able to get a lot more?"; and "Are taxes as important to jobholders as employers say they are?"

In outlining the Johns-Manville operations for the year 1939, Mr. Brown's report pointed out that the net profits of the Company amounted to 7 cents on each dollar taken in. Total profits are listed as $4,164,719, as compared to $1,455,302 in 1938. Net sales for the year are shown as $53,847,177 as compared to $46,890,147 in 1938.

Buys Taylor-Atkins Mill

The Burnside Paper Company has purchased the plant of the Taylor-Atkins Paper Mills, Inc. at Burnside, Conn. The permanent officers of the company have not as yet been elected, but Freeman T. Cleveland is the treasurer and general manager. Mr. Cleveland, who has spent his entire life in the paper industry, has, among other paper concerns, been connected with the John A. Manning Paper Company, the International Paper Company, the Union Bag and Paper Company, the North American Pulp and Paper Company and for the past year he has been general superintendent of the Setag Paper Company, Inc., at Riverton, Conn.

FREEMAN T. CLEVELAND

Southeastern Paper Men Meet

The Southeastern Paper Trade Association held its annual spring meeting on March 22 in the Roof Garden of the Rueger's Hotel, Richmond, Va. Twenty members were in attendance and a very active and interesting meeting was held.

R. H. Ziegler, assistant secretary of the National Paper Trade Association and R. A. Fife, secretary of the Tissue Paper Manufacturers Association were guests of the meeting. Mr. Ziegler explained the N.P.T.A. Association Certification Program and cooperated in various other discussions.

Mr. Fife explained the tissue paper manufacturing and converting situation most interestingly.

Officers for the coming year were elected and are as follows: President, Hugh G. Boyer, Caskie Paper Company Inc., Charlotte, N. C. Vice-Pres., Otto F. Hamilton, Hamilton Paper Corporation, Richmond, Va. Secretary, R. E. Morrisette, Dillard Paper Company, Greensboro, N. C. Treasurer, W. Disney Cole, Epes-Fitzgerald Paper Company, Richmond, Va.

Fine Paper Representative, Robert S. Johnston, Old Dominion Paper Company, Norfolk, Va.

Wrapping Paper Representative, Raymond I. Straus, American Paper Company, Richmond, Va.

Board of Governors, The above named Officers, and—J. L. Buchanan, United Paper Company, Richmond, Va.

Improved!

BELOIT HORIZONTAL *Dual Press*

PATENTS PENDING

● The Beloit Horizontal Dual Press has been improved by incorporating a primary roll over the first suction press, adding another nip. Thus, this press is now equivalent to three presses instead of two, the first suction roll doing double duty.

● The success of the Beloit Horizontal Dual Press has been definitely established. This new press gives even better results.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS. **IS THE MODERN WAY**

BELOIT IRON WØRKS BELOIT WISCONSIN

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for the Week Ending April 3, 1940

	High	Low	Last
A. P. W.	2¾	2⅝	2¾
Armstrong Cork Co.	42⅞	41	42⅞
Celotex Corp.	12⅛	11⅜	12⅛
Celotex Corp., pf.	71¾	66	71¾
Certain-Teed Products Corp.	7⅛	6¾	7⅛
Certain-Teed Products Corp., pf.	33	31½	32
Champion Paper & Fibre Co.	21¾	21¾	21¾
Champion Paper & Fibre Co., pf.	103¼	102¾	103¼
Congoleum-Nairn Co.	24	23⅜	24
Container Corp. of America	16⅜	15⅝	16¼
Continental-Diamond Fibre Co.	8	7½	8
Crown-Zellerbach Co.	15¾	15¼	15¾
Crown-Zellerbach Co., pf.	89	89	89
Flintkote Co.	20⅞	20	20¾
Robert Gair	4	2⅞	3⅞
Robert Gair, pf.	16	13½	16
International Paper & Power	12¾	11½	12¾
International Paper & Power, pf.	56¾	53½	56¾
Johns-Manville Corp.	70½	68½	70
Johns-Manville Corp., pf.	127¼	126¾	127
Kimberly Clark Corp.	38¾	37½	38¾
MacAndrews & Forbes	34	34	34
Masonite Corp.	36⅞	36½	36½
Mead Corp.	10⅝	9½	9½
Mead Corp., pf.	78	78	78
Paraffine Companies, Inc.	42½	42	42½
Rayonier, Inc.	16⅝	16¼	16¼
Rayonier, Inc., pf.	28	27⅝	27⅝
Ruberoid Co.	22	19¼	22
Scott Paper Co.	48	47	48
Scott Paper Co., pf.	108¾	108	108
Sutherland Paper Co.	32	30¾	31½
Union Bag & Paper Corp.	13⅞	12½	13⅞
United Paperboard Co.	5⅝	4⅝	5⅛
U. S. Gypsum Co.	85	81½	85
U. S. Gypsum Co., pf.	178	178	178

New York Curb Exchange

High, Low and Last for the Week Ending April 3, 1940

	High	Low	Last
American Box Board Co.	5½	5¼	5¼
Brown Co., pf.	27	25	25
Great Northern Paper	42½	41½	41¾
National Container Corp.	10	9⅜	9½
St. Regis Paper Co.	2⅞	2½	2⅞
St. Regis Paper Co., pf.	69	59¾	69
Taggart Corp.	4½	4⅜	4½

Masonite Nets $254,872.55

Masonite Corporation last week reported net profits for the second quarter of its fiscal year of $254,872.55, equal to 43 cents a share on the 539,210 shares of outstanding common stock. This represents an increase of 14 per cent over the net profits of $223,410.97 or 37 cents a share during the same period last year. The quarter covers the period from December 24, 1939 to March 16, 1940. The profit was figured after deductions such as depreciation and taxes and provision for preferred stock dividends had been made.

For the 28 weeks ending March 16 net profits totaled $695,931.12, or $1.20 per common share, an increase of 57 per cent over the profits for the corresponding period a year ago.

Sales for the quarter totaled $1,925,275.43, as compared with $1,526,552.14 for the same period last year, an increase of 26 per cent, it was announced. Sales for the 28 weeks ending March 16th totaled $4,544,591.88, as compared with $3,242,310.92 for the corresponding period a year ago, an increase of 40 per cent.

At the same time R. G. Wallace, Masonite vice president, announced expansion of production facilities in the Masonite main plant at Laurel, Miss., where the company's pressed wood fiber products are made, and in the Chicago plant of Masonite's Cellufoam division.

Additional equipment at the Laurel plant will raise this year's production 22.4 per cent above last year's, Mr. Wallace said, adding that increased activity in both building and industrial fields had made the step-up necessary. Production of the Laurel plant during the current fiscal year is expected to exceed 400,000,000 feet as the result of the expansion.

Additional facilities now being installed at the Cellufoam plant will increase production 30 per cent, Mr. Wallace said. This division, acquired last year, manufactures a distended wood fiber material used as thermal and acoustical insulation in airplanes, automobiles, refrigerator cars, residences and other types of buildings.

Mr. Wallace also announced that the corporation had distributed 1,700,000 pine seedlings to Mississippi farmers and 4-H Club members during the present planting season, the highest figure since the company's conservation and tree cultivation program was begun four years ago. The program is aimed at restoring Mississippi forest lands and providing farmers and land owners with a year-around cash crop for land that will bear no other type of planting.

United Wall Paper to Call Bonds

The United Wall Paper Factories, Inc., have called for redemption on May 1 all of its outstanding 6 per cent first mortgage bonds, due May 1, 1947, it has been announced. The bonds are redeemable at the Chase National Bank at a price of 103½ plus accrued interest to May 1.

Of the original issue $1,092,000 remain outstanding. The funds for this operation are provided in part by a five-year bank loan of $1,000,000 from two Chicago banks at an interest rate of 2½ per cent and the balance by cash accumulated by the company for this purpose.

Union Bag Sales Rise

The Union Bag and Paper Corporation pamphlet report for 1939 shows net sales of $17,561,967 increased from $16,517,875 in 1938. Balance sheet items as of December 31, 1939 and 1938, follow:

	1939	1938
Total assets	$20,244,154	$19,373,390
Cash	1,100,131	364,753
Inventories	2,396,561	2,179,306
Current assets	5,104,591	4,101,823
Notes payable, curr.	31,798	770,150
Current liabilities	989,021	1,861,701
Notes payable, not current	4,996,778	6,044,102
Earned surplus	2,557,702	1,592,170
Capital surplus	1,987,179	1,728,436
Capital shares	1,262,729	1,052,275

Abitibi Earns $389,595

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 1, 1940—Abitibi Power and Paper Company Limited reports earnings for February, prior to audit and charges for depreciation and bond interest, at $389,595, compared with $447,776 in January and $125,556 in February 1939. Included in the above earnings for 1940 is $107,149 received on United States exchange.

Shipments of newsprint in February according to G. T. Clarkson, receiver and manager, amounted to 23,675 tons compared with 25,800 tons in January,

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Simplified factory handling . . . protection against moisture, grease and other penetrating substances . . . more efficient coatings . . . these are some of the advantages in using RCI synthetic resins in heat seal coatings for paper.

Paper makers are also using synthetic resins for marproof, fast curing board coatings, paler overprint varnishes and lacquers and better wax treatments.

Write to Reichhold for more complete information on the use of RCI synthetic resins in the paper industry.

REICHHOLD CHEMICALS
INCORPORATED • DETROIT • MICHIGAN

1940, and 20,542 in February 1939. Present indications are that shipments of newsprints in March, 1940, will be about 26,000 tons as compared with 22,003 tons in March last year.

Sulphite pulp shipments in February amounted to 5,590, as compared with 5,415 tons in January 1940 and 2,846 tons in February 1939. Present indications are shipments of sulphite pulp in March will amount to about 5,800 tons as compared with 3,461 tons in March last year.

Corrugated Box Nets $59,509

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 1, 1940—The Corrugated Paper Box Company, Limited, Toronto, reports a net profit of $59,509 for the year 1939, compared with $39,534 the previous year. Current assets were shown at $445,152 and current liabilities at $105,842, leaving a net working capital of $349,310 compared with $305,322 at the end of the previous year.

Aubrey Davis, of Newmarket, a prominent industrialist, and head of the Davis Leather Company and also a director of the Bank of Toronto has been made a director of the St. Lawrence Paper Mills Company Limited.

Container Corp. Earns $1,448,900

The Container Corporation of America in a pamphlet report shows a net profit for 1939 of $1,448,900 as previously reported in preliminary statement. Current assets on December 31, 1939, including $1,044,018 cash, amounted to $6,592,559 and current liabilities were $1,882,983, compared with cash of $1,031,969, current assets of $5,366,602 and current liabilities of $1,001,165 at end of preceding year. Inventories were $3,644,189, against $2,859,950.

Great Lakes Declares Dividend

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., April 1, 1940—The Great Lakes Paper Company, Limited, Fort Williams, has declared a dividend of twenty-five cents a share on its classes A and B preference stocks, payable April 10. Initial dividend of this stock at one dollar a share was paid on December 30, 1939. Arrears of dividends giving effect to the latest payment amount to $7.75 a share.

Consolidated Earns $3.87 a Share

[FROM OUR REGULAR CORRESPONDENT]

WISCONSON RAPIDS, Wis., April 1, 1940—Net income of the Consolidated Water Power and Paper Company for 1939 totalled $1,531,982, or $3.87 per share, according to announcement last week. With the exception of 1929, this was the highest in the company's history. In 1938, the earnings were $477,901, or $1.22 per share.

Certain-teed Profits Up

The Certain-teed Products Corporation for 1939 reports a net profit of $348,099 after all charges, including non-recurring charges and provision for income taxes, compared with a net of $171,010 in 1938; net sales for the year were $15,516,550, against $14,625,882 in the previous year, an increase of 6.1 per cent.

B. C. Paper Co. Reports Loss

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., April 1, 1940—Present outlook of B. C. Pulp and Paper Company is for continued fulltime operation, with demand in excess of ability to supply, President Lawrence Killam informs shareholders in the company's annual report.

The company's mill at Woodfibre, B. C., resumed operations early in February, 1939, and the Port Alice, B. C., mill remained closed until the middle of last June. Since then both plants have operated, generally, at capacity.

The report is for the period ending December 31, 1939, and therefore does not reflect the present position of the company inasmuch as production was sharply curtailed during the period under review.

The loss for the year was $147,181, after allowing for interest on bonded debt and making provision for depletion of timber limits and taxes, and $225,000 for depreciation. Expenditures during the year charged against reserve for depreciation amounted to $54,670. A year previous the loss was $386,630, and no provision for depreciation was made.

Mr. Killam reports that a meeting of the holders of the company's six per cent first mortgage gold bonds authorized the postponement until November 1, 1942, of payments of interest due on these bonds May 1, 1939, to November 1, 1940, inclusive, with the right of prepayment of all or part of such interest should the financial position of the company at any time so warrant.

At the same meeting the sinking fund payments due on these bonds in the years 1939, 1940, 1941 and 1942 were cancelled.

U. S. Supplies Most of Costa Rica's Paper

WASHINGTON, D. C., April 3, 1940—The demand for paper in Costa Rica is supplied almost entirely by imports, which in 1938 totaled 2,235 metric tons, valued at $281,172, according to a report from the American Consulate, San Jose. The largest item was newsprint, amounting to 871 tons, followed by wrapping paper with 721 tons, and bags 466 tons. The United States supplied 49 per cent of the newsprint, 16.6 per cent of the wrapping paper and nearly 100 per cent of the bags imported into this country. Germany, Finland and Norway were the leading competitors in this market. While no statistics are available to show the imports for 1939, there is every reason to believe that they were fully equal to those of 1938. It is believed that Germany maintained, and probably increased, its share of the total, at least during the first 8 months of the year. One reason for Germany's predominance in this market has been the aski-mark compensation system in effect.

Lily-Tulip Nets $682,217

The Lily-Tulip Corporation and subsidiaries for the year ended December 31, reports a profit of $682,217 after taxes and charges, equal to $3.60 a share on 189,539 shares of common stock, compared with $225,062 or $1.18 a share in 1938.

St. Croix Paper Votes Dividend

The St. Croix Paper Company, has declared a dividend of $1 a share, payable April 15 to stockholders of record April 5.

Carthage Resumes

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., March 30, 1940—Papermaking operations were resumed early this week at the National Paper Products Company following a settlement of labor difficulties. An official of the mill stated that everything had been straightened out but whether or not an agreement was reached with the union employees could not be definitely ascertained. The papermaking department was forced to suspend operations on March 3. Members of the local branch of the International Brotherhood of Papermakers were reluctant to discuss the situation. It is known, however, that officials of the National Paper Products Company and representatives of the union attended a conference at Albany early in the week at which the difficulty is understood to have been ironed out. From a reliable source it was learned that the 60 members went back to work under the same program which had been in effect but that alterations in the contract between the local and the mill may be made when the new contract comes out in May. Although there has been no official statement, it is understood that the controversy arose when members of the local refused to make paper on Sunday. There was no disagreement over an overtime wage scale but the men apparently did not want to work Sundays. Paper machines have been idle since early in March and members of the local have not worked. Production went on as usual for several days as there was a sufficient surplus of paper to supply the converting department. However, during the past few days the surplus has become depleted with the result that activities have been curtailed. It was learned that several crews were temporarily dismissed pending a settlement of the labor dispute. Although the papermakers have returned it is understood that those laid off in the converting department will not return to work until a supply of paper has been built up.

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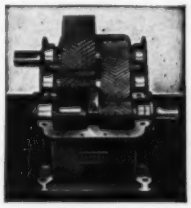

Typical double reduction assembly. Intermediate bearings and shaft properly proportioned for loads transmitted. Note rigid mounting of high speed pinion.

Farrel Gear Units provide smooth, quiet, uniform transmission of power, and give unfailing, efficient performance under the most exacting conditions.

A complete series of these units is available for a wide range of industrial applications. It includes single, double and triple reduction units, speed change units having two or more selective speeds, speed increasing units, right angle units, heavy duty drives and drives to meet special requirements.

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All units are self-contained and totally enclosed—standardized in general design but with flexibility in detail which permits variation to suit specific conditions of speed, load and service.

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To Analyze T. & H. Calendar

BOSTON, Mass., April 1, 1940—An analysis of the Tileston & Hollingsworth Calendar, which promises to be highly interesting, is to be given April 10 at the Columbia Hotel, Portland, Me., by Thacher Nelson.

Dr. Karlson Tendered Banquet

HUDSON FALLS, N. Y., April 1, 1940—A testimonial banquet was tendered this week to Dr. Karl R. Karlson, general manager of the Union Bag and Paper Company, by the division managers and foremen in appreciation of his services here. He came to this village in 1937 from the company's branch at Kaukauna, Wis. and will leave soon to take a responsible position at the Georgia plant. He was presented with a traveling bag. True M. Avery, vice president of the company, served as toastmaster at the gathering. The local branch has been operated very successfully under the management of Dr. Karlson.

News of the Philadelphia Industry

PHILADELPHIA, Pa., April 1, 1940—"New Member of Old Family" is the caption under which Garrett-Buchanan Company has put a mailing help on the market.

The new member of the envelope family, the Advelope, is designed to eliminate such waste by making the envelope serve a number of purposes. According to Garrett-Buchanan Company, distributor of the Advelope, it combines outgoing envelope, letterhead and a pocket to carry enclosures. There are four pages to the Advelope. The first and outside page is for address, illustration and "teaser" copy to whet the curiosity of those to whom the message is sent. The second page is used, generally, for a sales letter under the sender's firm letterhead, thus providing a "personal" appeal. Third and fourth pages form a catalog compartment and the back of the Advelope. Either or both the third and fourth pages may carry display copy of cut-outs to show the enclosure. Advantage of the Advelope is the fact that sales message and catalog arrive simultaneously on one postage at the lowest rate possible. Thus the prospect may obtain prices and specifications while still under stimulation of the original message.

Jack Shinners, chairman, of the entertainment committee of the Philadelphia Paper and Cordage Association, Inc., announces the final ballyhoo on the big Shad Dinner which will be held at the Hotel Philadelphian, 39th and Chestnut streets, on Friday evening, April 12 at 6:30 o'clock. This is an annual affair of the association and heretofore has been held at Kugler's restaurant. Hotel Philadelphian has been selected this year because of ample parking space and the use of an exceptionally large room to take care of the numerous registrations which are coming in. The festivities will start at 6:30 o'clock, when, to quote Mr. Shinners, "the first keg of beer will be tapped and this is on the house. We will have professional entertainment all during the dinner and right afterward we will have six specialty acts of such a variety as will satisfy the taste of everyone. After the professional entertainment we have other stunts arranged and those inclined can stay for the inevitable bridge tournament, etc. This is an opportunity for members to bring their customers and enjoy the festivities with your fellow members. It will be readily seen that at a price of $1.50 per person the Association is spending a good deal from the Treasury in order to make this a social success."

Moore & White Company report a substantial pickup in equipment and replacement for various mills, among which are orders for changes to paper machines for the Paterson Parchment Paper Company, Edgely, Pa., and for the W. C. Hamilton & Sons at Miquon, Pa. They are also manufacturing a high speed 4 drum winder for the New York and Pennsylvania Company at their Lock Haven mill together with a new specially designed machine.

Fort Wayne Loses Appeal

FORT WAYNE, Ind., April 1, 1940—The Fort Wayne Corrugated Paper Company here has lost an appeal to the U. S. circuit court of appeals at Chicago, Ill., on a National Labor Relations Board order to cease and desist from alleged anti-union activities. The court sustained a Board ruling that company-union agreements should be reduced to writing and ordered the reinstatement of one employee, discharged for union activities.

Form Groveton Papers Co.

LEWISTON, Me., April 1, 1940—Formation of the Groveton Papers Company, through consolidation of the Odell Manufacturing Company; its subsidiary, the Groveton Paper Company, of Groveton, N. H., and the Coos Realty Corporation, a holding company, was disclosed with the filing in Androscoggin County Court, Auburn, recently of legal papers.

Capitalization of the new firm was listed at $150,000. Dr. Owen Smith of Portland is president and Edward F. Moody of Portland a member of the Board.

The consolidation had court approval and followed an equity suit brought against the Odell Corporation by Hubert W. Brooks of Portland, a stockholder. Decision in the suit is pending.

Under the consolidation the same Odell directors continue in the new incorporation being allowed to exchange their stock share for share for that in Groveton Papers Company but the stock of the former Groveton Paper Company, Inc., and that of Coos Realty Corporation, is cancelled.

A mortgage of $1,150,000 held by the Odell Manufacturing Company on the Groveton Paper mill property will likewise be cancelled providing consent to this is granted by the Governor and Executive Council in New Hampshire.

Other officers of the corporation are Frank E. Moses, Groveton, N. H., treasurer; George T. Bain, Lewiston, clerk; Horace E. Monroe and Willard N. Monroe, R., Auburn, and Philip Colby, Groveton, being other members of the Board.

To Start Hampshire Mill Soon

SOUTH HADLEY FALLS, Mass., April 1, 1940—Operations at the Stevens Paper Mills, Inc., which recently acquired the old Hampshire mill property, are expected to be started soon, according to R. J. West of Westfield, general superintendent of the concern, who is in South Hadley Falls supervising the installation of new machinery. Some 25 people will be employed when the plant opens in the manufacture of electrical insulation paper. The company has a plant in Windsor, Conn., and two mills in Westfield, employing about 150 hands.

Benjamin West, who has charge of the upper mill in Westfield, and who is a brother of the general superintendent, will be superintendent of the local plant. He has been with the company for the past 12 years in various capacities, while R. J. West has been associated with the concern for 23 years. C. N. Stevens is president and C. J. Kaiser vice-president, William Slattery of West Springfield will be chief engineer and master mechanic.

All of the remodeling work has been completed, and machinery, the feature of which is an 86-inch Harper machine, is now in the process of installation. A straight 72-inch Fourdrinier machine, which was acquired in the purchase, will not be put in operation for the present.

The office will be maintained in Westfield. It is estimated that the cost of new machinery for the local plant will run into nearly $100,000. Overlooking the Connecticut river, the plant will be one of the most modern of its kind when ready for operation.

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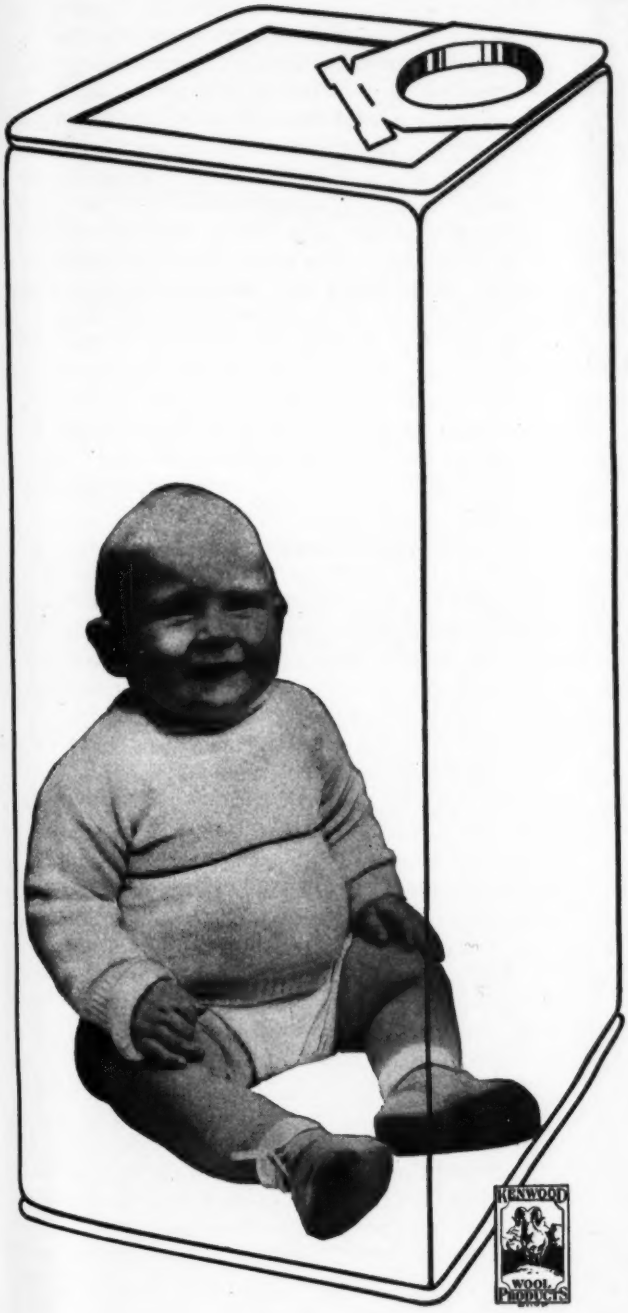

Single service paper containers for milk first appeared on the American market in the early 1920's. Today, after twenty years of experiment, these containers provide one of the fastest growing new markets for papermakers. The number of cities in which they are used increases every year. More than five million quarts of milk per week are now purchased in just one type of container introduced only three years ago.

Both dealer and consumer find many advantages in paper milk containers. They are sanitary, light in weight, save refrigerator space. Used only once, there is no washing, no returning, no deposit problem.

Made of virgin, bleached pulp, the container stock must be produced at high speed and with proper finish. This combination of speed and finish is one of the many paper problems solved by Kenwood Felts. For 70 years F. C. Huyck & Sons have kept apace of each new development in the paper industry and have helped papermakers to solve the problems that these new developments bring.

If you have a problem involving felts, call on the Huyck representative in your territory. He is backed by Huyck research and equipped by training and experience to give you real help—and his service is free for the asking.

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Henry J. Berger
EDITOR

Vol. 110 April 4, 1940 No. 14

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio. June 18-20.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

FOREIGN TRADE

For American business as a whole, the principal effect of the European conflict at this time, may prove to be a readjustment rather than expansion, states the Guaranty Trust Company of New York in discussing trends in our foreign trade since the conflict began, in the last issue of *The Guaranty Survey*, its monthly review of business and financial conditions in the United States and abroad, published on March 25.

"As far as can be seen at present," *The Survey* continues, "any trade expansion that may take place will continue to be highly selective, with stimulating effects in some lines offset by further obstacles in others. It seems inevitable, however, that the whole world will be staggering under the burdens and dislocations imposed by the conflict and will need every aid and encouragement that can possibly be given to the resumption of normal international economic relations.

The United States should be in a position to play an important part in the great task of reconstruction, and nowhere can our efforts be more helpful than in the field of international trade. Stabilization of currencies, removal of trade barriers, and redistribution of the world's gold are among the problems that will press for a settlement and that will largely depend for their successful solution on the policies followed by the United States. By the end of the conflict, our already unwieldly gold holdings will probably be further increased at the expense of foreign countries; inflationary dangers will be present throughout the world, and barriers of international trade will be more formidable than ever before. Under such conditions, a repetition of some past mistakes would be disastrous. Neither a policy of economic isolation or a futile effort to sell abroad without buying would be conducive to world recovery, or even to the attainment of the immediate objective, our own national welfare.

The foreign trade of the United States has increased sharply in the last few months. This gain seems to have brought about an upward revision of expectations in some quarters regarding the probable stimulating effects of the conflict on foreign demand for American products. While recent developments may warrant some of this optimism, they emphasize also the many uncertainties still obscuring the outlook and suggest that the earlier caution on the part of those concerned was not misplaced. Despite the increases in the last few months, imports are still on a considerably smaller scale than in the early part of 1937. Exports, on the other hand, are the largest since the early months of 1930. The export surplus, accordingly, has risen to a level comparable with that of the period of sharply reduced imports in 1937 and 1938. In five of the last six months, it appears that exports have exceeded imports by more than a hundred million dollars. Only rarely has a surplus of such magnitude been attained except in time of conflict or during a period when American capital was flowing abroad on a large scale."

In connection with this summary of the broad aspect of international trade in terms of general business, it is interesting to turn to some specific instances in the paper industry. When hostilities began in Europe concern was felt in this country of the possibility of curtailment of wood pulp imports. During 1939 this did not occur and Sweden, Finland, and Norway increased shipments to the United States over 1939. Total imports from these three countries were 2,026,200 tons in 1939, compared with 1,710,500 tons in 1938, and with 2,394,600 tons in 1937.

Imports of mechanical pulp for 1939 totaled 227,954 tons, compared with 158,865 tons in 1938; imports in January 1940 were 19,199 tons, compared with 20,076 tons in January 1939. Imports of unbleached sulphite for 1939 totaled 661,090 tons, compared with 688,322 tons in 1938; imports in January 1940 were 91,392 tons, compared with 59,379 tons in January 1939. Imports of bleached sulphite for 1939 totaled 473,863 tons, compared with 337,659 tons in 1938; imports in January 1940 were 48,887 tons, compared with 35,170 tons in January 1939. Imports of unbleached sulphate for 1939 totaled 546,398 tons, compared with 426,089 tons in 1938; imports for January 1940 were 79,358 tons, compared with 49,319 tons in January 1939. Imports of bleached sulphate for 1939 totaled 107,952 tons, compared with 90,173 tons for 1938; imports in January 1940 were 22,005 tons, compared with 6,090 tons in January 1939. Im-

ports of all grades in January 1940 totaled 262,199 tons, compared with 170,587 tons in January 1939.

Imports of all kinds of paper for 1939 totaled 2,702,958 tons, compared with 2,357,477 tons in 1938; imports in January 1940 were 205,761 tons, compared with 188,925 tons in January 1939.

Exports of all grades of wood pulp for 1939 totaled 139,504 tons, compared with 140,484 tons in 1938; exports in January 1940 were 15,713 tons, compared with 6,284 tons in January 1939.

Exports of paper of all kinds for 1939 totaled 266,079 tons, compared with 208,064 tons in 1938; exports in January 1940 were 33,253 tons, compared with 16,073 tons in January 1939.

The above figures show that since the European conflict foreign trade in wood pulp has increased up to February 1, 1940 and that exports of paper and paper board are above any year since 1929, although imports of paper in 1939, while higher than in 1938, were well below the total of 1937. Although our export trade in paper and paper products is very small in comparison with our aggregate volume it appears of increased importance in relationship with our present foreign trade policy and agreements.

Chicago To Have Chemical Show

Chemistry and chemical industry will feature the American Chemical Exposition by the Chicago Section of the American Chemical Society announced by R. C. Newton, of Swift & Co., chairman of the committee in charge, at the meeting of the Chicago Section at the Stevens Hotel, Chicago, on March 29.

Plans for the first exposition, to be held December 11 to 15, 1940, at the Stevens Hotel, have been perfected by a committee of ten and approved by the board of directors of the Chicago Section. Funds for promoting that exposition have been supplied by the section.

Emphasis will be placed on chemical products, Dr. Newton said, and scientific exhibits will be included. The plan is to make this the first of a series of expositions to be held in even numbered years to alternate with the Exposition of Chemical Industries.

"Approximately 32,000 square feet will be available for exhibits," said Dr. Newton. "We expect to provide and assign booths to some 300 exhibitors.

"The show is designed to depict the science of chemistry in many of its phases and its application to industry and the needs of man. Chemistry plays a part in providing to civilization the luxuries as well as the necessities of life. It has also done its share in providing work for the unemployed through the medium of new developments and new applications which it has opened by new discoveries necessitating the building of new plants or the occupancy of idle factories during the economic depression. We anticipate that Chicago will become the capital of the world of chemistry during the exposition."

Employed by the committee as exposition manager is M. W. Hinson, a man of long experience in the field. Offices of the Exposition have been opened by the committee at 110 North Franklin street, Chicago, Illinois.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.6%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.5%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	.....	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	.....	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	.....	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
YEAR AVG.	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 12 weeks	87.6%	80.9%	67.1%	90.3%	76.6%	68.3%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
February 17	86.8%	February 18	82.6%
February 24	87.1%	February 25	80.6%
March 2	83.8%	March 4	83.5%
March 9	83.6%	March 11	84.2%
March 16	84.8%	March 18	82.3%
*March 23	81.9%	March 25	84.1%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Feb. 17, 1940	Feb. 24, 1940	Mar. 2, 1940	Mar. 9, 1940	Mar. 16, 1940	Mar. 23, 1940
0% to 50%	50	47	54	64	60	43
51% to 100%	249	252	244	230	228	159
Total Mills Reporting	299	299	298	294	288	202

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	....	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. Feb. 17, 1940—70%
Week end. Feb. 24, 1940—69%
Week end. Mar. 2, 1940—69%
Week end. Mar. 9, 1940—69%
Week end. Mar. 16, 1940—70%
Week end. Mar. 23, 1940—70%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

* Preliminary figure.

Government Paper Bids

WASHINGTON, D. C., April 3, 1940—Government Printing Office has received the following bids for 40,000 pounds of supercalendered book paper in 28½ inch rolls; R. P. Andrews Paper Company, 4.33 cents; Stanford Paper Company, 4.93 cents; Whitaker Paper Company, 4.75 cents; Mudge Paper Company, 4.5 cents; Frank Parsons Paper Company, 4.6 cents; Marquette Paper Company, 4.89 cents; Paper Corp. of U. S., 4.69 cents; and Old Dominion Paper Company, 5.529 cents.

For 56,000 pounds of 50 per cent rag, M. F. lithograph paper; Mudge Paper Company, 8.69 cents; Whitaker Paper Company, 10.33 cents; R. P. Andrews Paper Company, 8.88 cents; Stanford Paper Company, 9.54 cents; Aetna Paper Company, 9.33 cents; Paper Corp. of U. S., 9.04 cents; and Marquette Paper Company, 9.13 cents.

For 6,700 pounds blue M. F. book paper; Stanford Paper Company, 10 cents per pound.

They Started Something!

GREAT among the great men who "started something" in this world was Thomas Alva Edison. And probably the greatest of all the things he started was the incandescent lamp — an invention that turned night into day for millions of people and gave them new safeguards of vision. It gave the world a new industry, also, which is today one of the largest and most necessary — the electrical industry. Practically no single invention has such a deep and widespread effect upon the history of mankind.

Edison's invention was successful because it met a vital need of humanity. The development of EBG engineers — the first commercial production of Liquid Chlorine in America — was successful for the same reason. Because this product was made available from a domestic source to users throughout the country many important advances have been made. Textile and paper bleaching has been placed on a more scientifically efficient basis. The bleaching of other products has also been greatly improved. Great savings in lives and improvements in standards of health have been made, too, because EBG pioneered in using Liquid Chlorine for water purification and the sterilization of sewage.

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FIRST IN THE COUNTRY

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Annual Progress Report of TAPPI Paper Testing Committee, 1939–1940*

By B. W. Scribner, Chairman[1]

There were several changes in the organization for the committee work. L. S. Reid resigned as chairman of the Microscopic Subcommittee and was succeeded by F. W. O'Neil of the New York State College of Forestry. The remaining personnel of the subcommittee was changed considerably to include persons particularly qualified to participate in the further development work. The Grease Resistance Subcommittee was discontinued because the Glassine and Greaseproof Paper Manufacturers Association proposed support of an investigation at The Institute of Paper Chemistry for further development of a standard method. The Physical Testing Subcommittee was discontinued as the development projects on hand required no investigative testing. It was considered desirable to transfer the work of the Printing Properties Subcommittee to the Graphic Arts Committee, therefore this subcommittee was also discontinued. Because of the change in the nature of the projects assigned to the former Water Resistance Subcommittee, its title was changed to Writing and Erasing Properties Subcommittee. J. D. Davis was inadvertently omitted from the membership list of the main committee printed in the Year Book.

There are now 20 members of the Paper Testing Committee, and 23 additional members of subcommittees, making a total of 43 engaged in the development work. Manufacturing, consuming, and general interests continue to be represented by the members.

Status of Projects

Physical Properties

With consideration of discussion of the proposed method for water vapor permeability at the last annual meeting of the association, it was further revised by the subcommittee chairman, G. J. Brabender, with the assistance of F. T. Carson, and was again circulated to subcommittee members and others for criticism. Mr. Brabender will report the outcome at this annual meeting.

P. W. Codwise reports that he has not been able to make much progress with methods for writing and erasing quality because of the press of other duties but hopes to proceed with these shortly.

The ground-glass test for permeability to water was approved by the Standards Committee, as a suggested method. It is designated T443 sm.

The Tentative Standard T441 m, Water Absorptiveness of Non-Bibulous Papers and Paperboards, was advanced to the status of an official standard.

It was found that the time of delivery of ink specified in T 431 m, Ink Absorption of Blotting Paper, was more critical than had been known heretofore, therefore this was changed to not less than 4 nor more than 5 seconds.

A revision of T 404 m, tensile breaking strength, was completed in cooperation with the A.S.T.M. Paper Testing Committee. The method for bursting strength is being considered jointly by the two committees. Revision of T 423 m, Folding Strength, is in progress and it is proposed to include both the Schopper type of tester and the M.I.T. tester as standard instruments.

A proposed method for creasing quality, prepared by J. d'A. Clark, was voted upon favorably by the Paper Testing Committee and is being considered by the Standards Committee.

A proposed method for stiffness, rigidity, and softness, also prepared by Mr. Clark, is being considered by the Paper Testing Committee. The method was described by him in the March 28, 1935, issue of Paper Trade Journal.

A proposed method for expansion or contraction of paper with varying moisture is being acted upon by the committee. This is based on the apparatus developed at the National Bureau of Standards by Weber and Geib.

A revision of the method for dirt count, T 437 sm, was approved by the Standards Committee, as a tentative standard. An improved comparison chart for use with the method was prepared by J. d'A. Clark.

The method for sampling, T 400 m, was revised jointly with the A.S.T.M. committee.

A suggested method for identification of specks and spots was approved by the Standards Committee.

Chemical Properties

Revisions of the methods for starch, T 419 m; resin, T 408 m; alpha-cellulose, T 429 m; reducible sulphur, T 406 m; and a method for silver tarnishing, T 444 m, were approved by the Standards Committee. The new procedure for cellulose provides for determination of the alpha-, beta-, and gamma-fractions, and is based on the modified volumetric

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Member TAPPI, Chief Paper Section, National Bureau of Standards, Washington, D. C.

method developed by H. F. Launer at the National Bureau of Standards. It was found that the gravimetric procedures did not effect satisfactory separation of the cellulose fractions, and furthermore the volumetric method has the advantages of requiring only a very small test specimen, of saving in time, and of simplicity. The method for resin was changed to provide for use of hydrochloric acid to break up rosin compounds as acetic acid, previously specified, did not effect complete separation. It is based on work by Sutermeister and Torrey and by Launer. The distinctive feature of the revised method for starch is the use of saliva for hydrolyzing the starch to sugar. No other enzyme was found to be as selective in its action as far as cellulose is concerned. The revised methods for resin and starch have become official standards of the Technical Association of the Pulp and Paper Industry.

A proposed revision of the method for hydrogen ion concentration, and a proposed method for pentosans, both based on modified procedures developed by Launer, are being subjected to round-robin testing by P. H. Wehmer's Subcommittee on Chemical Testing. In the former cold extraction of the paper is used, and it is proposed that the results be expressed in both *p*H values and the corresponding H- and OH- ion values. The pentosans method is a simplified volumetric method based on that of the Association of Agricultural Chemists. It is hoped that the results of the round-robin testing can be reported at this meeting.

The methods for starch; casein, T 415 m; ash, T 413 m; moisture, T 412 m; alpha-, beta-, and gamma-cellulose; and paraffin, T 405 m, were approved, with slight changes, by the A.S.T.M. committee.

MICROSCOPY

Little progress was made in the projects relating to the testing of paper fibers because the reorganization of the subcommittee was not completed until late in the year. A proposed method for measuring fiber dimensions, based on the procedure developed by John H. Graff of The Institute of Paper Chemistry, is being prepared by Prof. O'Neil. Round-robin testing of identical samples of papers, in further study of the use of weight factors and the Graff "C" stain, is being done by members of the Microscopic Subcommittee.

COLOR

The method for spectral reflectivity and color of paper, developed by the Color Committee, was approved as a tentative standard by the Standards Committee. It is designated T 442 m.

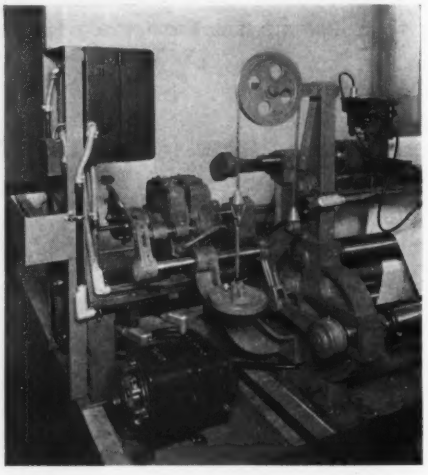
Summary of Accomplishments

There were completed for the consideration of the Standards Committee 6 new methods, and 6 revisions of methods, not including minor revisions. All of these but 2 have been approved by the Standards Committee. The number of projects on hand is 11. Five years ago there were 24 projects listed, which indicates that progress is being made in covering the field of testing. The total number of methods adopted by the association is now 47.

It will be noted from the foregoing that considerable advance was made in the coordination of TAPPI and A.S.T.M. methods.

Photoelectric Control "Straightens Out" Paper Roll

Should the paper coming off the roll on this Cameron Machine Company's winder and slitter machine be skewed or out of line, a G-E photoelectric



G-E PHOTOELECTRIC SIDE-REGISTER CONTROL

side-register control system will guide it back to the proper track. Technically speaking, an Amplidyne generator controlled by a photoelectric amplifier supplies power to a d-c motor which, in turn, shifts the roll of paper to maintain registration.

The Microscope

D. Van Nostrand Company, Inc. has recently published Roy M. Allen's new book, entitled "The Microscope". It is a practical book giving the essential facts dealing with optical principles, illumination, testing of microscope objectives and preparation of material for examination. Appended to this information is a useful bibliography.

One chapter shows how to get the most out of the use of a microscope, development of technique, the personal equation, working under handicaps, use of light filters, darkfield microscopy, polarized light and the use of miscellaneous equipment for very special purposes.

The author has had more than forty years experience with the microscope, has been a consultant for many industrial companies and was for several years President of the New York Microscopical Society.

Although the book does not deal specifically with paper fibers it is an excellent general text and useful to those who have occasion to use the microscope. It may be obtained through the book department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York at $3.00 per copy.

Correction

New tentative TAPPI standard—In the issue of the PAPER TRADE JOURNAL of March 28, 1940, (pages 28-29) Moisture Expansivity of Paper, a footnote should have stated that this method is TAPPI tentative standard T 447 m-40.

Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Sulphite Process

The Sulphite Pulping of Douglas Fir. E. B. Brookbank, Jr. Paper Trade J. 108, No. 7: 30-38 (Feb. 16, 1939).—Pulps satisfactory with respect to yield and quality were obtained from Douglas fir heartwood, sapwood, slabwood, and the entire tree by the usual sulphite process. It was not found necessary to use any chemical pretreatment or special base in the cooking liquor to accomplish this. The principal points of difference between the cooking conditions used in this investigation and used by other workers were: higher free sulphur dioxide concentration (6 per cent), all experimental pulping was carried out at 134 deg. to 140 deg. C. which is considerably lower than reported in the literature, and a very low temperature rise from 110 deg. C. to maximum temperature and a high initial pressure (85 lb. per sq. in.) were used. The physical and chemical properties and possible applications of Douglas fir pulps are discussed.—A.P.-C.

Methods for Cooking Straw and Other Vegetable Fibers By the Monosulphite Process. Luciano Musmeci. Ind. carta 6 no. 1:11-13 (Jan., 1939); B. I. P. C. 9:477.—The author reviews briefly the principal studies and patents dealing with the application of the monosulphite process to the cooking of grasses, cornstalks, straw, and other vegetable fibrous materials.—C.J.W.

The Neutral Sulphite Process for the Manufacture of Cellulose From Italian Raw Materials. Pietro Rossignoli. Ind. Carta 5, no. 12:451-456 (Dec., 1938); B. I. P. C. 9:477.—The results of experimental cooks with neutral sulphite are discussed. The influence of the variable factors, such as temperature, pressure, and cooking period, percentage of reagents, and liquor composition on pulp yield, consumption of chemicals, bleachability, and pH is described. The characteristic papermaking properties of the following fibers cooked with neutral sulphite are given; wheat straw, bagasse, esparto grass, Savannah grass, common hemp, and alfalfa.—C.J.W.

Wood Pulp. VIII. Influence of Pressure on Digestion of Lauan Wood in Bisulphite Cooking. C. K. Pal. J. Cellulose Inst. Tokyo 14: 314-315 (1938).—Three-stage cooking at 130 deg. C., viz., for 4 hr. at 8 atmospheres, 2 hr. at 7 atmospheres and 2 hr. at 6 atmospheres, gave pulp with 8.7 per cent lignin; increasing the first period to 5 hrs., the other periods remaining as before, gave 3.3 per cent lignin, whilst cooking for 8 hr. at 8 atmospheres produced only overcooked pulp.—A.P.-C.

Concerning the Speed of Oxydation of Sulphite Waste Liquors. K. Schwabe and Paul Lagally. Wochbl. Papierfabr. 69, No. 49: 1037-41 (Dec. 3, 1938).—In Germany, 700,000 tons of dissolved substances of which eighty per cent are organic, are contained in the sulphite waste liquors. Recovering the fermentable sugars in the waste liquor does not appreciably lessen this amount of dissolved substances. On account of the low percentage of the various substances and the great percentage of water in the waste liquors, the economic utilization of waste sulphite liquor is questionable. The most troublesome feature of waste liquor dumped into the rivers, is not the pH of the liquor but the sulphur content which is over 1 per cent and in the form of sulphate, sulphite and ligno sulphonic acid. If the waste liquor is fermented, the amount of oxydizable material is decreased only about ten per cent. The author then devotes considerable discussion to the method for testing the rate of oxydation and the results of the experiments performed. It was concluded that the demand on oxygen is not serious and that the rate of oxygen consumption is so slow for the sulphite waste liquor in the river that the atmosphere can readily supply the demand. Comprehensive bibliography is included.—J.F.O.

The Utilization of Pulp Mill By-Products With Special Reference to Vanillin Manufacture. George H. Tomlinson, Jr. Chemistry & Industry 57: 1047-1049 (Nov. 5, 1938).—A brief discussion of methods used for the recovery of valuable by-products from kraft black liquor and from sulphite waste liquor.—A.P.-C.

Utilization of Waste Liquors of Pulp Manufacture. Erik Hägglund. Hölz als Roh- u. Werkstoff 2, no. 1:18-21 (Jan., 1939).; B. I. P. C. 9:376.—In all methods of pulp manufacture, almost half of the wood substances are dissolved; their utilization presents one of the most urgent problems. The ratio of sugar to lignin in sulphite waste liquor is about 1:2. The sugars are utilized in the manufacture of sulphite spirit; the possibilities of higher yields as well as the utilization of the fermentable sugars in the waste liquor for yeast manufacture are discussed. The lignosulphonic acid finds application in the tanning industry, as adhesives, and recently also in the soap industry. The results of fertilizing experiments in agriculture were less promising. The manufacture of vanillin deserves attention; its significance would be still greater if an organic large-scale industry could be built on its use. The application as fuel depends on economic methods of evaporation. The black liquors of the sulphate and soda industries are evaporated and burnt for the purpose of alkali recovery. Whether or not the alkali could be recovered without burning the organic substances has not yet been determined. Reference is made to methods of purifying liquid rosin from sulphate liquors.—C.J.W.

Some Methods of Purification of Lyes Obtained in the Sulphite Method of Cellulose Fabrication. Wladyslaw Brzyski. Przeglad Chem. 2:589-594 (1938); C. A. 33:3583.—A short review of the various methods of purification of cellulose lyes with special attention to the use of lime. Results of some experiments on the influence of the amount of lime and initial concentration of the lye upon the degree of purification are reported.—C.J.W.

Development of the Manufacture of Yeast From

Wood. Richard Lechner. Holz als Roh- u. Werkstoff 1, no. 15:603-607 (Dec., 1938); B. I. P. C. 9:325.—The author reviews briefly the present status of wood saccharification methods and the development of yeast manufacture from wood sugar. Reference is made to properties of wood sugar yeast and feeding experiments, as well as to the Heikenskjöld method for utilizing sulphite waste liquor for baker's yeast. Since 1936 German experiments have been under way for utilizing sulphite waste liquor for the manufacture of fodder yeast. Twenty-five literature references are appended.—C.J.W.

Adhesives

Few Hints on Pasting. Rich Kirchner. Papier-Ztg. 64, no. 22: 522 (March 18, 1939); B. I. P. C. 9:438.—When a paper, such as a picture, poster, or map, is intended for pasting upon a cardboard backing, the machine direction of both paper and board must be determined. The adhesive should be applied from the center towards the edges; before pasting, the paper should be allowed to stretch for a few moments. Machine direction must be placed upon machine direction and the smoothing of the pasted paper should again proceed from the center towards the edges, so that no wrinkles are formed. A paper of the identical tension and thickness as the first one is then pasted on the back of the board to prevent warping after drying, care being taken that the machine direction is identical in all three layers. The finished product is pressed between clean boards for at least 12 hours.—C.J.W.

Interesting Facts Concerning Rubber Adhesives and Their Application. Papier-Ztg. 64, no. 15/16: 358, 360 (Feb. 25, 1939); B. I. P. C. 9:439.—The advantages of latex emulsions as adhesives in the paper converting industry and their suitability for bookbinding purposes are pointed out. They do not become hard and brittle on aging but retain their original flexibility; troubles caused by the paper being cut in the cross instead of the machine direction are far less noticeable, and posters prepared by pasting paper to board usually need no backing in the case of latex adhesives. They can also be used for the many types of artificial leather which are employed to an ever increasing extent in the bookbinding trade.—C.J.W.

Straw Adhesives. Johann W. Eggert. Gelatine, Leim, Klebstoffe 7, no. 1-2:5-7 (Jan., Feb., 1939); B. I. P. C. 9:386.—Reference is made to the furfural contained in the waste liquors of alkaline straw pulping and the possibility of utilizing the polymerization products of this material in the adhesive industry.—C.J.W.

The Pasting of Glassine Paper Upon Machine-made Gray Boards. Papier-Ztg. 64, no. 13:240 (Feb. 15, 1939); B. I. P. C. 9:331.—A converter who is pasting glassine paper to board by means of a pasting machine, using potato starch as adhesive, is troubled with the formation of wrinkles upon the finished product. He tried to overcome the defect by the use of special adhesives, slower operation of the machine, and heating of the paper web to speed up the drying procedure; however, all these expedients were unsuccessful. Other converters doubt the possibility of obtaining a smooth pasting of glassine to board. The different answers agree that the faultless combining of the two materials offers one of the most difficult converting problems. It seems that the adhesive used has too high a moisture content. If technically possible, it is suggested that the adhesive be applied to the board instead of to the paper, and that the pasted product be subjected immediately to heat and pressure, so that no moisture can penetrate into the glassine paper and cause it to stretch. The adhesive might also be applied to thin strips of the paper only, about 1-2 cm. wide, instead of to the entire sheet, so that the board and paper are only united at intervals. In conclusion, the use of embossed glassine paper is suggested, since this would not show wrinkles to the same extent.—C.J.W.

Effect of Adhesive on Strength Characteristics of Corrugated Fibreboard. D. W. McCready. Fibre Containers 24, no. 2:20, 22, 24-26, 28 (Feb., 1939); B. I. P. C. 9:331.—In order to determine the effect of the adhesive on the strength of corrugated boxes, a research program was inaugurated at the University of Michigan. Another object of this program was to approach the problem concerning strength characteristics from an engineering standpoint, that is, to treat corrugated board like a structural material and develop, if possible, simple tests which, when applied to the corrugated board, would indicate the strength characteristics of the finished boxes. The three adhesives investigated were silicate, silicate-clay, and starch, one normal rate of application and one heavier than normal being used for each case. Efforts were made to keep all other conditions as uniform as possible. Apart from the usual Mullen strength and box compression tests, special tests were developed for transverse bending, stiffness, and compression tests of the boards. The results are presented in block graphs and show rather definitely that the adhesive used greatly affects the strength properties of the box. A silicate-glued fiberboard is stronger in practically all respects than a starch-glued board made from the identical stock. The tests also indicate the possibility of predicting the compression strength of boxes from the modulus of elasticity of the fiberboard, although a much larger quantity of confirmatory data will be required before such relationship can be finally established.—C.J.W.

Ask New Patent on Pliofilm

Goodyear Tire and Rubber Company, Akron, Ohio, anticipating stretch-wrap application of its rubber hydrochloride "Pliofilm" to powdered, granular, and even liquid substances, has filed a patent application on a vacuum-type applicator, which will work equally well with solid articles.

Principle of the new device in operation is as follows: A sheet of Pliofilm is held in place over the aperture of a metal chamber of the desired size, open at the top. An arrangement of outlets connected with a pipe circuit permits exhaustion of air from the metal chamber.

Pliofilm sheet is heated and exhaustion of air from the chamber causes the sheet to expand from the pull of the partial vacuum and fit against the contour of the chamber's walls. Material to be packaged then is poured into the pre-shaped package, which is heat sealed by twisting the opening, prior to release of the edges of the sheet for removal from the machine.

The Function of pH in Water Treatment*

By C. E. Imhoff[1]

Abstract

The hydrogen ion concentration, or pH value, of water is a very important factor in determining whether difficulties will be encountered through the use of the water in the power plant. The properties of the hydrogen ion are unique in many respects when contrasted to those of other ions. This accounts for the large influence it exerts upon the characteristics of different waters. The hydrogen ion may exert its influence by either direct or indirect action. It affects certain types of scale formation by influencing the solubility of calcium and magnesium salts. The efficiency of softening processes involving precipitation depends upon the hydrogen ion concentration. The purification of water or condensate by adsorption and coagulation is variable with the hydrogen ion concentration. The hydrogen ion is capable of exchange reactions when passing through zeolite softeners. This property is used to fullest advantage in the carbonaceous zeolite softening process. The rate of corrosion of iron and steel largely depends upon the number of hydrogen ions in contact with the metal. The hydrogen ion concentration can be regulated and controlled and many water problems can be solved by modification of the pH value.

The year 1705 marks the invention of the Newcomen boiler which is said to be the first real steam generator. This boiler was used to generate steam for use with the Newcomen atmospheric engine. It had been about 1800 yr. since a boiler generated steam for Hero's engine, the first recorded instance of an engine doing mechanical work. Although it has been only 235 yr. since the first steam generator was put into operation, a great many changes have been made in designs, sizes and capacities. It is rather striking when one considers that it took 1800 yr. to develop a working model into a practical machine and then only 235 yr. for the development to proceed from generating steam at atmospheric pressure to the present limit of 2500 pounds. Such rapid developments have been accompanied by new and unexpected problems.

One problem which became increasingly important as pressures were increased, was that of water treatment for boiler feed purposes. It became evident from experience that the use of some waters caused much more trouble than others. The chemist was able to point out quantitatively by means of analyses just how one water varied with another. The engineer learned that the water he was using to make steam contained such things as calcium, magnesium, silica, carbonates and sulphates, and sometimes an analysis would contain a number denoting *p*H value. Since the calcium, magnesium, silica, carbonates and sulphates were things he could see in the form of mud and scale, they took on a real and understandable significance. The *p*H value seemed to have little more importance than a period at the end of a sentence. Years of study of the various reactions taking place in a feedwater cycle, however, have shown that the *p*H value does have a great effect on these reactions. One famous chemist has stated it this way: "Finally, acidity and alkalinity surpass all other conditions, even temperature and concentration of reacting substances, in the influence which they exert upon many chemical processes."

Hydrogen Ions

A little less than 60 yr. ago Arrhenius, a Swedish chemist, propounded the theory of ionization of dissolved salts in aqueous solutions. Essentially the theory is that salts, acids and bases are torn apart by water molecules and the fragments comprising the original unit become positively or negatively charged, depending upon the nature of the fragment. These charged particles are usually single atoms or atom groups and are called ions. When acids are mixed with water, hydrogen is always one of the fragments or ions liberated. A strongly acidic solution is one in which the hydrogen ion concentration is very high. A strongly alkaline solution is one in which the number of hydrogen ions is very small. The term *acidic* and *alkaline* are only relative and refer to two extremes of hydrogen ion concentration. They are opposites only in the same sense that "hot" and "cold" are opposites of the amount of heat in a substance. Oddly enough, it is impossible to have a water solution in which the hydrogen ion concentration is zero.

There is always an equilibrium which exists between the hydroxide (alkaline) ions and hydrogen (acid) ions. All aqueous solutions contain these two in a definite ratio. For example, when a solution contains 10^{-8} moles of hydrogen ions, then there are also present 10^{-6} moles of hydroxide ions. The sum of the exponents is always —14. If a solution contains 10^{-10} moles of hydrogen ions it also contains 10^{-4} moles of hydroxide ions. An idea of the relative ratios may be gained by graphically representing the magnitude of the hydrogen and hydroxide ion concentrations as shown in Fig. 1. If a scale of 1 in. is chosen to represent the hydrogen ion concentrations under all conditions, then at *p*H 7 (neutral point) the hydroxide ion concentration is also represented by a line 1 in. long. At *p*H 8 the ratio is 1 in. to 8.3 feet. At *p*H 12 the ratio has increased to the tremendous value of 1 in. to 158,000 miles. *p*H is a symbol meaning literally "power of the hydrogen ion concentration." The word "power" is used in the mathematical sense synonymous with "exponent." The magnitude of the hydrogen ion concentrations varies so greatly that it was found more convenient to express this value in terms of logarithms to avoid ambiguous numbers. The hydrogen ion concentration is usually considerably less than a one molar solution so that the logarithm has a negative sign. Then, in order to deal with positive numbers, the sign of the logarithm was changed. The *p*H symbol, therefore, represents the logarithm of the reciprocal of the hydrogen ion concentration.

$$pH = \log \frac{1}{\text{hydrogen ion concentration}}$$

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Chemical Engineer, Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Although this system has a number of advantages, it has the disadvantage of expressing large hydrogen ion concentrations by small numbers and small hydrogen ion concentrations by large numbers. This is in contradiction to our usual mental habit of designating larger quantities by greater numbers.

If water chemists were asked to list in the order of importance the ions commonly found in water, the hydrogen ion would invariably head the list. Palm readers say that the thumb is the greatest tattle-tale in reading the character of a person and the same thing may be said about the hydrogen ion in relation to the character of a water. More information may be obtained from the *p*H value than from the concentration of any other ion, exclusive, of course, of the hydroxyl ion. Weight for weight, the effect of the hydrogen ion cannot be compared to any of the others for it far surpasses them all in this respect. One part of a substance in a million parts of water is commonly thought of as being almost negligible. One part per million (p.p.m.) is equivalent to .0001 per cent by weight. When a solution contains as little as 1 p.p.m. of hydrogen ions, the *p*H value is 3 and there is a distinctly acid reaction.

As an example of what *p*H may reveal, consider a water having a *p*H value of 9.0. The following can be inferred concerning the character of the water:

1. It is probably noncorrosive because at a *p*H of 9.0, the corrosive activity of hydrogen is largely repressed.
2. It may be a partially softened water for a *p*H of 9.0 indicates the presence of alkaline salts not present in raw water. Lime and soda ash are the most common alkalies used.
3. It is not a typical boiler water.
4. It contains no free carbon dioxide.
5. It is not a raw water, see item 2.
6. It is probably not a condensate sample for the normal *p*H range for condensate is 6.0-7.0.
7. It is probably saturated with respect to calcium carbonate and will not undergo heating without precipitation of calcium carbonate.

No single determination alone will give as much information as that of the hydrogen ion concentration.

Properties of Hydrogen Ions

In order to exert such a powerful influence on the nature of water, the hydrogen ion must have special

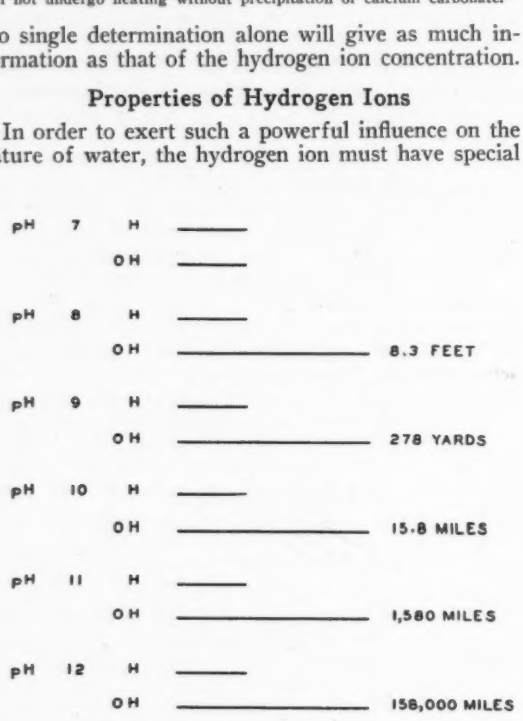


FIG. 1.

Ratio of Concentrations of Hydrogen and Hydroxide Ions at Various pH Values.

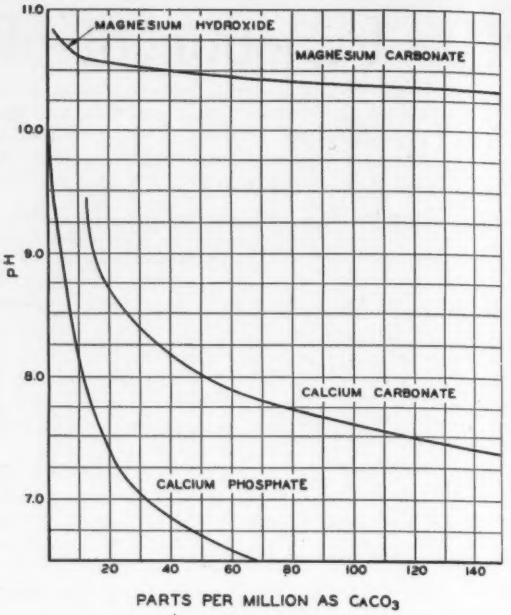


FIG. 2.

Solubility of Calcium and Magnesium at Various pH Values.

attributes to differentiate it from the other ions. Table I compares some of these properties.

TABLE I

Ion	Ionic velocity	Ion conductivity	Relative weight	Ionic radii
Hydrogen	320	315	1	.29
Hydroxide	181	173	17	..
Calcium	....	51	40	.98
Magnesium	....	45	24	.71
Sodium	45	43	23	.98
Sulphate	....	68	96	..
Chloride	69	65	35	1.81
Nitrate	64	62	62	..

From a study of this table and from other data, the following statements may be made concerning the hydrogen ion:

1. It has a greater speed than any other ion.
2. It will conduct more electricity than any other ion in a unit of time.
3. It is by far the lightest in weight.
4. It occupies a smaller volume than any other ion.
5. It is the ion of the only metal which is gaseous at ordinary temperatures.
6. It always exists in equilibrium with the hydroxide ion.

These unique physical properties of the hydrogen ion are due to its unusual atomic structure which also imparts to the ion special chemical properties.

Influence on Solubility

The influence of the hydrogen ion in feedwater and steam cycles is restricted mainly to two general types of phenomena. They are: the influence on the solubility of various compounds, and the influence on corrosion.

It will be easy to understand how the hydrogen ion concentration effects solubility if a piece of marble (calcium carbonate) is dropped into a solution of acid. The calcium dissolves and goes into solution under the influence of a high hydrogen ion concentration of the acid. This demonstrates that calcium carbonate is soluble in solutions having a low *p*H value. Normally the calcium and the carbonate radical will unite to form insoluble calcium carbonate. If, however, the calcium ion encounters competition in the form of a hydrogen ion, a divorce immediately takes place and the hydrogen and carbonate ions

elope to form carbonic acid, leaving the calcium in solution.

$$CaCO_3 + 2H^+ \rightarrow Ca^{++} + CO_2 + H_2O$$

In addition to calcium carbonate other compounds similarly influenced by *p*H value are calcium phosphate, magnesium carbonate, magnesium hydroxide and ferrous hydroxide. Figures 2 and 3 show how their solubility values vary with changes in *p*H.

Solubility of Calcium Carbonate

Baylis *(1)* was one of the first to emphasize the importance of *p*H control in the precipitation of calcium and magnesium in cold process softening. Referring again to Fig. 2 it will be noted that in order to precipitate calcium carbonate most completely, it is necessary to have a *p*H value of at least 9.4. At this point calcium carbonate has reached a minimum of solubility. In order to precipitate most of the magnesium it is necessary to have a *p*H value of about 10.8. It has long been the practice in municipal lime softening to over-treat in order to get a maximum amount of softening. Then, in order to make the water more palatable, the *p*H value is reduced by the addition of carbonic acid (carbon dioxide). The amount of soluble magnesium in the filter effluent may be varied without affecting the soluble calcium by regulation of the *p*H value anywhere above 9.4. It is sometimes very desirable to have soluble magnesium present in lime-soda softened boiler feedwater in order to make use of its beneficial effects in the boiler. The *p*H is most easily manipulated by increasing or decreasing the lime dosage. A lowering of the *p*H value allows more soluble magnesium to be present in the filter effluent, while an increase in *p*H results in a reduction in the soluble magnesium.

In softening reactions the *p*H value is adjusted to produce a maximum amount of precipitation of calcium and magnesium. The adjustment of *p*H value may also be used to prevent the precipitation of calcium and magnesium where these precipitates are undesirable. Fig. 4 shows a build-up of calcium carbonate scale in a condenser tube. The *p*H value of the circulating water has been gradually increased by aeration until the saturation value of calcium carbonate has been exceeded. An increase in temperature also causes calcium carbonate to come out of solution but its effect can be entirely overcome by a decrease of the *p*H value. Undesirable calcium carbonate deposits are usually found in heat exchangers or condensers where the calcium carbonate content

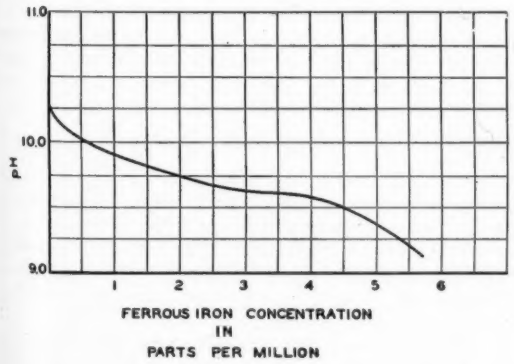


FIG. 3.
Solubility of Ferrous Hydroxide at Various pH Values.

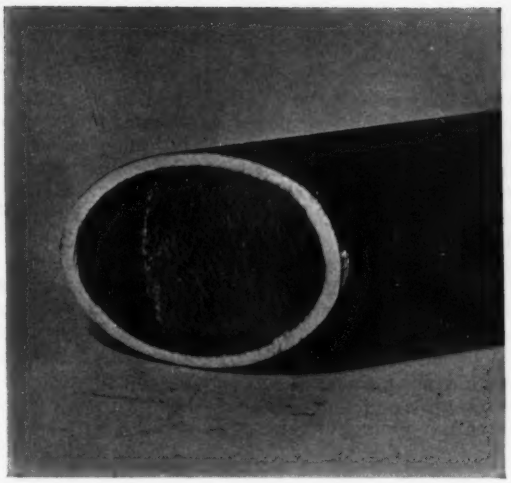


FIG. 4.
Calcium Carbonate Scale in a Condenser Tube.

in the water is near the saturation value. These may be prevented by the use of small amounts of acid. Sulphuric is most commonly used, since it is cheapest for industrial use. Carbonic acid is very widely used when a carbon dioxide generator is available. The gases from burning coke or engine exhaust are a common source for the carbon dioxide. Carbon dioxide dissolves in water to form carbonic acid and when obtained from either of the above mentioned sources is cheaper than sulphuric acid. The amounts of acid used in most cases do not exceed several parts per million but require a means of feeding which is fairly uniform. In the acid treatment of condenser cooling water, the acid is admitted at the suction of the circulating pump. It is quite necessary that the acid be added in a closed system so that no dissolved carbon dioxide will be lost through escape to the air.

Effect of Carbon Dioxide

The influence of dissolved carbon dioxide in keeping the *p*H value down is quite marked and can be illustrated by reference to a number of different types of water which have undergone either aeration or deaeration, in which case there is an appreciable loss of carbon dioxide, accompanied by a rise in *p*H value. Table II shows some typical examples taken from actual operating conditions.

TABLE II.—SHOWING THE INCREASE IN pH RESULTING FROM LOSS OF CARBON DIOXIDE.

Type of sample	Type of decarbonator	pH before	pH after
Well water	Sprays of cooling pond	7.3	8.5
Condensate	Deaerating heater	5.5	6.8
Steam	Deaerating condenser	6.0	6.8
Boiler feed	Deaerating heater	7.1	8.2
Hydrogen zeolite	Aeration tower	4.5	6.5

Calcium carbonate and carbon dioxide are in equilibrium in well water. A loss of carbon dioxide upsets the equilibrium and some calcium carbonate comes out of solution. The use of the well water cited in the above table results in considerable scale in steam turbine condensers when no treatment is used to prevent it.

Condensed steam always contains some free carbon dioxide. The action of a deaerating heater is to drive off the carbon dioxide with a resulting decomposition of the carbonic acid. The increase in *p*H

value which is accomplished by deaerating condensers is due to removal of carbon dioxide under the influence of a high vacuum.

The effluent of a carbonaceous zeolite contains a rather large amount of carbonic acid. This carbonic acid is formed from the bicarbonates in the unsoftened water. The *p*H is usually quite low and in order to remove most of this acidity, an aeration tower is provided following the softener. Aeration removes the soluble carbon dioxide and breaks down the carbonic acid. An appreciable increase in *p*H value follows this aeration process.

The above examples demonstrate how changes in soluble carbon dioxide content of water may change its *p*H value. This holds true for all conditions under a *p*H value of about 8.2. The shifts in *p*H values accompanying these changes in carbon dioxide concentration often determine whether calcium carbonate will precipitate or remain in solution.

Solubility of Calcium Phosphate

Calcium phosphate is another compound of calcium whose solubility it is important to control. In boilers and softeners the calcium phosphate must be as insoluble as possible. By reference to Fig. 2 it is indicated that above a *p*H value of 10 the solubility of calcium phosphate is practically zero. The *p*H value of boiler water is usually around 11, assuring a minimum solubility.

The application of phosphate in external softeners is limited to waters of low hardness. The primary phosphate softener is used with di-sodium or tri-sodium phosphate and caustic soda. A coagulant is also helpful especially if the water contains organic matter. A common use of the phosphate softener is in series with a lime-soda softener. When used in this manner it is called a secondary phosphate softener. The lime-soda softener reduces the hardness to about 1 gr. per gal., after which the hardness is reduced to zero in the phosphate softener. Figure 5 shows a diagramatic arrangement of the lime-soda and phosphate combination. It is not necessary to have a filter between the two but the final filter must be much finer than for the ordinary lime-soda softener. The calcium phosphate sludge is largely removed by filtration and because of its very small particle size requires a fine filter to retain it. Secondary phosphate softening is used to furnish boiler feed make-up with zero hardness and low excess alkalinity. Its purpose is to remove the phosphate

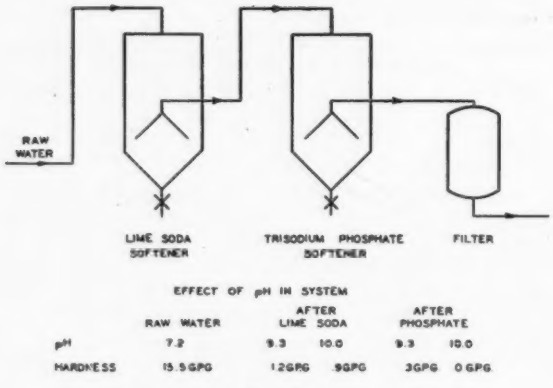


FIG. 5.
Lime-Soda and Phosphate System of Softening.

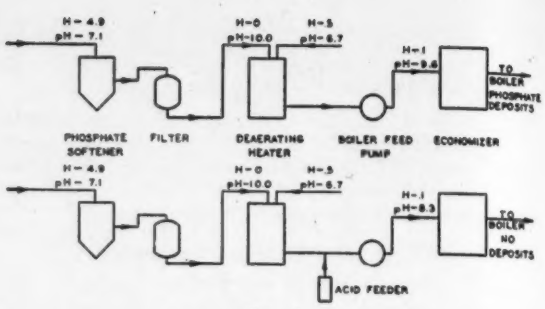


FIG. 6.
Primary Phosphate Softening before and after Use of Sulphuric Acid.

sludge outside the boiler. Ordinarily phosphate treatment following a lime-soda softener results in the precipitation of calcium phosphate within the boiler. Under certain conditions this phosphate sludge may be sticky and difficult to remove from the boiler. By removing it before it gets into the boiler, the phosphate softener adequately eliminates this source of trouble. Proper control of the *p*H value is very important if complete removal of calcium phosphate sludge is to be accomplished in the softener.

The prevention of calcium carbonate precipitation by lowering the *p*H value has previously been discussed. There arise situations in which the precipitation of calcium phosphate may also be prevented by *p*H control. When the effluent of a phosphate softener containing excess phosphate mixes with condensate returns in the heater, the mixture will contain both soluble phosphate and hardness if the condensate is in any way contaminated with raw water. In such cases it is necessary to take precautions against the precipitation of calcium phosphate in feed lines, closed heaters and regulating valves. The *p*H may be decreased below the solubility value and both the soluble calcium and phosphate are admitted to the boiler without precipitation. Inside the boiler, however, the *p*H conditions are much different than in the feed line and calcium phosphate precipitates out immediately. Fig. 6 is a flow diagram showing *p*H values in the same system before and after the use of acid for prevention of phosphate deposits. The *p*H value from the softener is 10.0. After mixing with the returned condensate in the heater the *p*H value drops to 9.6. Calcium phosphate is still insoluble and causes a build-up of scale in the closed heater and regulating valves. The use of sufficient sulphuric acid to lower the *p*H below 8.5 is sufficient to prevent difficulty from phosphate deposits. The minimum *p*H value for prevention will vary with conditions depending upon the total hardness of the softened water, the percentage and quality of condensate returned and the total temperature attained by the feedwater before entering the boiler.

Adsorption

The elimination of certain impurities from water can be accomplished only by adsorption on surfaces. These impurities may be oil, colloidal suspended matter, color and dissolved silica. The material on which it is adsorbed is the coagulant. The adsorption phenomenon depends upon several factors, such as, the insolubility of coagulating agent, and the chemical nature of both the impurity and the coagulant. Both of these factors may be influenced by *p*H value. The most common coagulants are the salts of iron and

aluminum. Their adsorption is based on the formation of the hydroxide or partially hydrolyzed salts which are insoluble compounds. The *p*H value affects the solubility of these compounds and also determines to some extent the nature of the electric charge on the particles. Excessively high or excessively low *p*H values may cause the coagulant to be entirely soluble and under these conditions, of course, there can be no adsorption since there is no surface present. The *p*H value will also affect purification by changing the nature of the impurity. It will have a greater or less affinity for the adsorbent and the ease with which it can be removed will thus be affected. Figure 7 shows how adsorption varies with the *p*H value for various impurities.

Curve 1 shows that a certain oil removal by coagulation with ferric sulphate is most efficient at a *p*H of 6. This does not hold true for all types of oils as others are more completely removed at higher *p*H values. A good deal depends upon whether the oil was of vegetable or mineral origin. Curve 2 in Fig. 7 shows how *p*H value affects the removal of turbidity from municipal water. The zone of maximum removal shifts slightly as minor changes occur and must be closely watched from day to day.

Curves 3 and 4 show that soluble silica is most efficiently removed from solution by both aluminum and iron at a *p*H of about 9. External silica removal is a rather recent development but is one about which more will be heard as high pressure, high make-up plants are installed in localities where water contains much dissolved silica. The effect of *p*H upon the impurity undoubtedly has something to do with its adsorption in this case, for dissolved silica has several modifications which it undergoes as the *p*H value is changed. For example, soluble silica may exist as Si_2O_5—, H_3SiO_4—, $H_2Si_2O_6$—, and SiO_3—according to the *p*H value of the solution. These various modifications will have different affinities for coagulating agents and consequently will be more easily (or more difficultly) adsorbed than the other species.

Siliceous Zeolites

The purpose of the siliceous zeolite softener is to exchange sodium ions for calcium ions. Like the farmer who goes to the grocer with a basket of eggs and comes back with a basket of groceries, the raw water goes to the zeolite with calcium and magnesium ions which it "trades even" for sodium ions. This bartering goes on until our grocer, the zeolite softener, starts running low on sodium ion groceries and finds his shelves are almost filled with calcium and magnesium eggs. Because of this shortage of supplies, the grocer will not accept all of the farmer's eggs which are available and the latter is compelled to take some of them back home. At this point in the analogy the softened water begins to show traces of hardness. The grocer then arranges with a wholesaler to exchange the stock of accumulated eggs for a new stock of groceries. In the zeolite softener the accumulated stock of calcium and magnesium ions are exchanged for a new stock of sodium ions by passing a solution high in sodium ion concentration through the softener. This is the regeneration process.

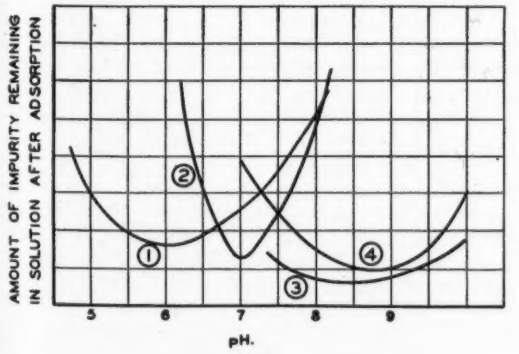


FIG. 7.

Effect of pH Value on Adsorption and Coagulation. 1. Oil Removal by Ferric Sulphate. 2. Turbidity Removal by Alum. 3. Silica Removal by Ferric Sulphate. 4. Silica Removal by Aluminum Sulphate.

The cheapest source of sodium ions is from salt brine and it is universally used for regeneration on the sodium cycle. For many years, since the utilization of zeolites for industrial softening, no attention was given to other possible reactions than that of softening by exchanges of calcium and magnesium for sodium. One of the disadvantages of this exchange was that when the calcium and magnesium in the original water existed as the bicarbonates, the sodium in the softener effluent was the bicarbonate. When used for boiler feed purposes, the sodium bicarbonate broke down to form caustic soda and difficulties were experienced in the form of carryover and caustic embrittlement. The use of sulphuric acid in conjunction with the zeolite softener was developed and as a result many of these difficulties were corrected. Several plants noted that boiler water conditions were very much different depending upon whether the acid was added before or after the softener. The addition of acid before softening had much less effect on reduction of alkalinity than when the acid was added after softening. The most logical explanation was that the hydrogen ion supplied by the sulphuric acid was also being exchanged for sodium ions. The grocer was accepting pigeon eggs at the same face value as hen eggs. Industrial experience also showed that if the water was acid treated and then thoroughly aerated before softening, the alkalinity was reduced by the amount of acid added. The aeration had reduced the hydrogen ion concentration by removing the carbonic acid.

Behrman and Gustafson *(2)* studied the effect of hydrogen ions on zeolites between the values of 7.8 and 4.3. Below 4.3 the hydrogen ion concentration becomes great enough to affect the stability of the zeolite structure. When the water contains free carbon dioxide, the degree to which hydrogen ions are exchanged for sodium can be measured by taking *p*H values before and after softening. King and Smith *(3)* used this method of studying the reactions of carbonic acid in a zeolite softener. The effect of weakly acid solutions on the performance of a zeolite are noticeable between the *p*H values of 6.8 and 4.5. The total capacity far calcium and magnesium is considerably less than in water of the same hardness but with higher *p*H value. Figure 8 shows the different stages through which a zeolite bed passes, beginning with complete regeneration and continuing through the softening cycle. There are three noticeable stages: the removal of hydrogen ions from the water; inactivity toward hydrogen ions; and, the addition of hydrogen ions to the water.

When the bed is freshly regenerated, calcium, magnesium and hydrogen are all exchanged for sodium and consequently the *p*H value of the effluent is greater than that of the influent. Any carbonic acid has been converted into sodium carbonate or soda ash. This represents the first stage of softening. The second stage of softening is represented by an inactivity of the zeolite toward the hydrogen while the calcium and magnesium-sodium exchange remains normal. The *p*H value of the effluent is the same as that of the influent. The third stage in the softening is reached when the sodium in the zeolite has been further depleted and an exchange begins to take place between hydrogen and the calcium and magnesium. This is the hydrogen which was stored in the zeolite during the first stage of softening. The effluent in this case has a lower *p*H value than the influent. All three of the stages described are not abrupt but gradually merge into each other.

The lower exchange capacity of a zeolite on low *p*H water is probably due to an incomplete exchange between the hydrogen and the calcium and magnesium during the third stage of softening. Most of the natural green sand zeolites will withstand operation on low *p*H waters with no harmful effects. There is the possibility, however, of minor destructive action on synthetic zeolite during the process of regeneration.

The use of a high *p*H water through a zeolite will result in softening of the bed and slow disintegration. Silica will be dissolved and carried on into the boiler and there will be a loss of mineral. In plants where zeolite softening is to follow a lime treatment, sulphuric acid is used to bring the *p*H value down to 8 before passing through the bed.

Carbonaceous Zeolites

The new carbonaceous zeolite, described by Tiger *(4)*, besides being nonsiliceous, is different from the ordinary zeolite in that it has an enormous capacity for hydrogen. It is regenerated with acid and readily exchanges hydrogen ions for calcium, magnesium and sodium. This is a very important property since it makes possible the complete removal of bicarbonates by converting them to carbonic acid. The carbonic acid is removed by aeration. The performance of the carbonaceous zeolite may also be divided into three stages. Since the regeneration is with hydrogen ions, they are in reverse order to those in the sodium zeolite:

1. The addition of hydrogen ions to the water.
2. Inactivity toward hydrogen ions.
3. The removal of hydrogen ions from water. (This is not done in practice because the softener is regenerated before this stage is reached.)

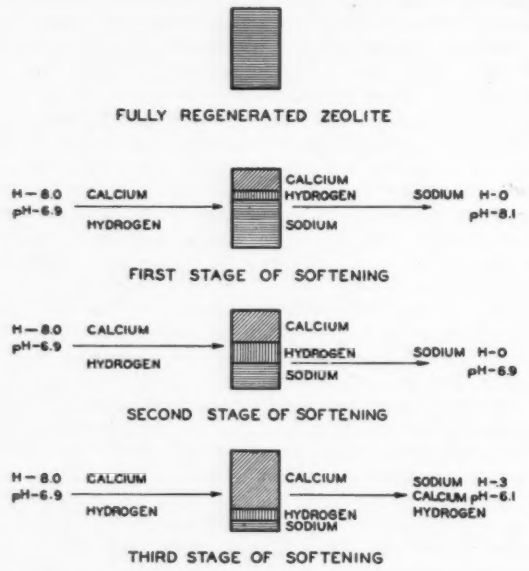


FIG. 8.
Stages in Zeolite Softening of Water Having a Low pH Value.

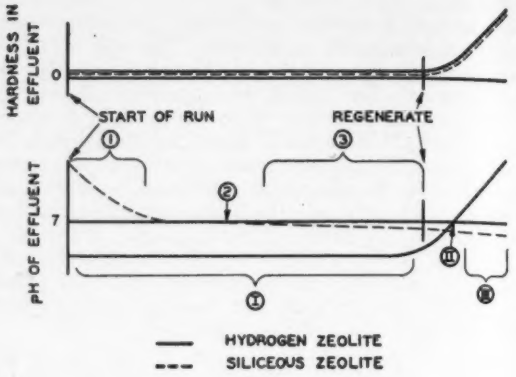


FIG. 9.
Performance Curves for Zeolite Softeners.

Figure 9 shows comparative performance curves for hydrogen and siliceous zeolites with special reference to the behavior towards hydrogen ions. The curve for siliceous zeolites shows that all three stages of hydrogen ion exchange are passed through before it is necessary to regenerate. The curve for the carbonaceous zeolite indicates a different performance. The bed is regenerated at the end of the first phase of hydrogen ion exchange, because it is at this point that the completeness of conversion of bicarbonates to carbonic acid begins to diminish. Beyond this point it is not possible to completely remove the bicarbonates by aeration. The outstanding characteristic of the hydrogen zeolite softener is its ability to convert bicarbonates into carbonic acid, and in order to take full advantage of this characteristic, it is necessary to regenerate slightly before the end of the first phase of hydrogen exchange.

Corrosion

Much has been written *(5)* about the corrosion of iron and steel and many mechanisms have been suggested. Regardless of exact mechanism, however, the facts seem to bear out the contention that the "rate" of corrosion (in steam and feed-water systems) is a function of the *p*H value and the "amount" of corrosion is a function of the dissolved oxygen content. The primary corrosion products are metallic (gaseous) hydrogen and soluble iron. It is the same type of reaction as occurs when an iron nail is placed in a solution of copper sulphate. The copper ions plate out on the iron in the form of metallic copper while an equivalent amount of iron goes into solution. The plated hydrogen tends to protect the metal from further attack by the hydrogen ions and would succeed in doing so if there were no forces acting to remove it. The process of corrosion may be said to consist of two parts:

1. The plating out of hydrogen ions with the resulting dissolution of iron.
2. The removal of the plated hydrogen from the surface of the metal.

Chemical equations may be written for each part.

1) $\underset{\text{metallic iron}}{Fe} + \underset{\text{hydrogen ions}}{2H^+} = \underset{\text{gaseous hydrogen}}{H_2} + \underset{\text{soluble iron}}{Fe^{++}}$

2) (a) $\underset{\text{hydrogen}}{2H_2} + \underset{\text{oxygen}}{O_2} = \underset{\text{water}}{2H_2O}$

(b) $\underset{\text{on iron surface}}{H_2} =$ mechanically removed H_2

Fig. 10 is a representation of the corrosion reactions to illustrate the action of the ions involved. The analogy represents only the basic reactions, as the more complex aspects cannot be clearly shown. It may be a little clearer if we represent the change in free energy which accompanies corrosion by the following formula.

$$-\Delta F = C + k \log \frac{(H^+)^2}{(Fe^{++})}$$

This is a mathematical expression of the intensity factor of corrosion in terms of the hydrogen ion concentration.

The plating of hydrogen on iron is essentially an exchange of electric charges between atoms of hydrogen and iron. An electric charge is a passport entitling any atom to move about freely in solution. In acquiring a charge the atom becomes an ion. The metallic iron atom has a great desire to travel and if a charged hydrogen atom (hydrogen ion) is in the near vicinity it has no trouble persuading the hydrogen ion to hand over its touring privilege for the supposedly more desirable privilege of standing in rank with an army of metallic iron atoms. This transfer constitutes the first reaction in corrosion. Turbulence and impingement of flow upon the hydrogen covered iron surface will soon sweep the metal free of protective coatings and the freshly exposed iron is again free to react with hydrogen ions.

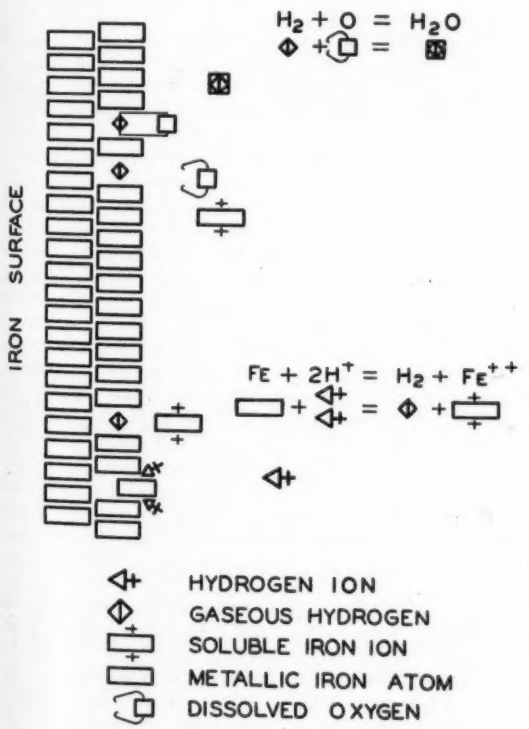


FIG. 10.

Diagramatic Representation of Corrosion Reactions.

Erosion may often be a combination of chemical and mechanical factors. Just at the time when hydrogen is imparting its positive charge to the iron, it is extremely reactive and is sometimes called nascent hydrogen, meaning "just born." Oxygen, if present, is reacted upon with the formation of water. This also leaves the original surface freely exposed to more hydrogen ions. The greater the amount of hydrogen ions present, the greater is the amount of iron taken into solution during a given unit of time. The *p*H has another bearing on corrosion in that it influences the solubility of ferrous hydroxide. The iron or ferrous ions are immediately converted to ferrous hydroxide by the hydroxide ions and at high *p*H values the ferrous hydroxide is very insoluble. The formation of this insoluble hydroxide takes place on the surface of the metal and serves to shield it from further reaction with hydrogen ions. A high *p*H value retards corrosion since there is present such an extremely small amount of hydrogen ions for reaction and conditions are very favorable for the formation of impervious iron oxide coatings.

Measuring pH Values

The technique for the measurement of the hydrogen ion concentration is not much more than 35 yr. old. Modern improvements have advanced so far that the determination of the hydrogen ion can probably be made with more accuracy than that of any other ion normally present in water. For routine work the colorimetric method is sufficiently accurate. The use of the glass electrode, however, is becoming very popular and if properly used it is capable of great accuracy. Most of the *p*H recording assemblies on the market use the glass type of electrode. In order to get consistent results with the glass electrode, its limitations must be recognized and a certain amount of care must be exercised in its use. When the electrode is not in use it should remain immersed in distilled water. When solutions in the high or low *p*H range are tested, a correction is necessary to compensate for the so-called "salt error." In solutions of low hydrogen ion concentration this error begins at a *p*H value of about 10, and increases as the *p*H value increases. No corrections are necessary in the acid range (below 7) normally encountered in water treatment. When using the glass electrode on a series of samples having widely varying *p*H values it is extremely important that the electrode be thoroughly washed with distilled water between samples. The electrode should be washed with several portions of the sample before a *p*H reading is taken. The operation of the electrometer or potentiometer is of course equally as important as that of the electrode. A recommended practice is to have available two widely separated buffer solutions. If the instrument will check with both buffers it is pretty certain that the whole system is in proper working order.

Conclusions

The control of the *p*H value is accomplished by control of the alkaline or acidic chemicals which enter into the reactions of any chemical process. An increase in *p*H value is effected by the addition of

alkaline salts such as caustic soda, soda ash, sodium phosphate, lime and sodium silicate. Chemicals used to reduce the *p*H value include sulphuric acid, muriatic acid, alum and carbonic acid. If a process involves the use of alkaline chemicals it is often possible to reduce the *p*H value by a reduction in the amounts of alkaline material used. It should be remembered that the above mentioned chemicals cannot be used indiscriminately without regard for their effects other than influence on *p*H. For example, sodium silicate should not be used to raise the *p*H of boiler feedwater because of the detrimental effects of the silica added to the boiler.

Power plant problems capable of solution by *p*H control include:

The prevention of calcium carbonate deposits in feedlines, condensers and heat exchangers.

Attainment of maximum softening efficiency from lime-soda and phosphate softeners.

The prevention of calcium phosphate deposits in feed-lines, closed heaters and regulating valves.

The most efficient removal of impurities involving coagulation.

The protection of zeolite mineral from aggressive water.

The elimination of corrosion.

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Our Patent System*

By Charles W. Rivise[1]

Abstract

Our patent system is based upon the principle that a man's invention is something peculiarly his own. There are no strings or conditions attached to a patent in this country. Many attacks on the system are due to lack of knowledge as to nature of patents. Complaints that patents are monopolistic, that they stifle competition, that they favor larger corporations, and they cause unemployment are without foundation in fact. Individual inventor is still a very important factor in field of patents. Inventions are not generally kept from public as long as possible, nor do inventors as a general rule deliberately keep applications pending as long as possible. Delays are often due to the Patent Office and system of examination.

Temporary National Economic Committee has recommended changes in patent laws which will adversely affect individual inventors and small manufacturing establishments. Thus far, individual inventor's position has not adequately been presented to the Committee. It is hoped that hearings will not be closed until all parties interested are given opportunity to present their case. Patentees have been accused of using patent rights improperly, but very little has been said as to improper tactics of infringers. Worse evil appears to be "ganging up" on inventor by several large corporations. In some cases, outsiders having no interest in patent in suit join "Holy war" against independent inventor.

The economic and industrial achievements of the American people have been truly remarkable. In the short space of 150 years, we have grown from an insignificant group of agricultural and trading communities to the greatest industrial nation on earth. In a recent issue of the *Atlantic Monthly*, Wendell L. Wilkie stated:

"Three conditions are primarily responsible for the extraordinary economic achievements of the American people. We were, of course, lucky in coming to a land where the natural resources were abundant. We were even luckier to come to it at such a time and under such circumstances that it could be developed as a whole, before it was chopped up into small competing territories as in Europe. This meant that we were not only rich in raw materials, but blessed with the greatest free-trade area in the world. We could ship our goods from one coast of the continent to the other without ever paying a tariff or passing a customs inspection.

"To these physical conditions our forefathers added what might be called a spiritual one: a faith in individual initiative and free enterprise. When our forefathers said 'freedom', they did not mean simply freedom of speech, freedom of press, or freedom of religion. They meant economic freedom as well. They were strong believers in the desirability of encouraging business enterprise."

Our Patent Laws vs. Foreign Patent Laws

It is because our forefathers had an abiding faith in individual initiative and free enterprise that they wrote into the law of the land a patent system based upon an entirely new principle; namely, that a man's invention is something peculiarly his own. Hence, our patent laws, unlike those of most other countries, require that the inventor, and he alone, shall make application for the patent. For the same reason, patents in this country are issued without any strings or conditions attached to them. The patent is the inventor's, to do with as he pleases, and is not subject to an annual tax or compulsory working, as in certain foreign countries. Hence, if an American inventor is poor, and the greatest inventors have been poor, and cannot manufacture or induce others to manufacture his device for him, his patent cannot be taken from him as in foreign countries. In this connection, it is to be noted that in countries that require the payment of annual taxes and compulsory working, a manufacturer, who wishes to avoid paying royalties to the inventor, need only wait until the inventor permits his patent to lapse for failure to pay the taxes or to work the invention, in order to appropriate to himself the results of the inventor's work.

Attacks on Patent System

From almost the very beginning, our patent system has been the object of sporadic and violent attacks, in Congress and out of Congress. Many of the attacks have come from persons who did not understand the nature of a patent right and did not realize the important part our patent system has played in the industrial development of America. Other attacks have come from some special groups that discovered to their surprise and discomfiture that patents cannot al-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 19-22, 1940.

[1] Member TAPPI, Patent Attorney, Caesar & Rivise, 1321 Arch St., Philadelphia, Pa.; Chairman, TAPPI Patents Committee.

ways be infringed with impunity. Recently, the patent system has been attacked on the ground that patents are either monopolistic or tend to foster monopoly, that they stifle competition, that they favor larger corporations and intrenched privilege to the detriment of smaller concerns and individual inventors, and that they cause unemployment. Many of its critics are ready to admit that the patent system has been a powerful factor for good in the past, but contend that it has long since outgrown its usefulness and should be either abolished entirely or radically changed.

Patents Are Not Monopolistic

It can readily be shown that patents are not monopolistic. Patents are issued only for new and useful inventions, and hence cannot be said to deprive the public of anything in which it already had an interest. On the contrary, the hope of obtaining patent protection serves to stimulate inventiveness and ingenuity and to induce inventors to make public their inventions and discoveries. At the end of the patent term, the invention becomes public property, and hence the public comes into possession of an invention which the patentee might have suppressed entirely or practiced secretly, had he not been induced by the hope of patent protection to make a public disclosure.

As Daniel Webster said in his now famous argument in the Goodyear Vulcanized Rubber case in 1852:

> "The right of an inventor to his invention is no monopoly. It is no monopoly in any other sense than as a man's own house is a monopoly. A monopoly, as it was understood in the ancient law, was a grant of the right to buy, sell, or carry on some particular trade, conferred on one of the king's subjects to the exclusion of all the rest. Such a monopoly is unjust. But a man's right to his own patent is a very different matter. It is no more a monopoly for him to possess that, than to possess his own homestead.
>
> "But there is one remarkable difference in the two cases, which is this, that property in a man's own invention presents the only case where he is made to pay for the exclusive enjoyment of his own. For by law the permission so to enjoy the invention for a certain number of years is granted, on condition that, at the expiration of the patent, the invention shall belong to the public. Not so with houses; not so with lands; nothing is paid for them, except the usual amount of taxation; but for the right to use his own, which the natural law gives him, the inventor as we have just seen, pays an enormous price. Yet there is a clamor out of doors calculated to debauch the public mind."

Patents Promote Competition

It can also be shown that patents do not necessarily tend to stifle competition. Inventors are invariably stimulated by the existence of patents in their fields not only to devise improvements, but also to develop noninfringing ways of accomplishing the same result. The fact that the new ways of accomplishing the old result can be patented induces men with capital to exploit the new invention in competition with the old. I personally know several cases in which an inventor or a small manufacturer, with very little means or prestige, was able because of a patented invention to enter a field that had previously been dominated and controlled by several large corporations. In at least one case, the field was controlled by a combine of several companies that by means of overlapping patents was able to dominate the industry to the extent of fixing prices. However, the monopoly of the combine was not safe, for a poverty stricken inventor invented a much better product and was able to obtain a patent. The fact that he received a patent rendered it possible for the poor inventor to raise the necessary capital to finance the invention and create a competing business. The new product was so much better than the old that the consuming public flocked to the new product, thereby destroying the strangle-hold that the patent combine had previously had on the industry. Without the protection of a patent, it would have been practically impossible to induce moneyed men to enter into competition with the patent combine. Hence, the patent had the effect of creating and fostering competition.

Large Corporations Not Necessarily Favored

It can also be shown that patents as such do not necessarily favor larger corporations to the detriment of smaller concerns and individual inventors. Larger corporations have no greater advantages in the field of patents than they have in other fields. In fact, the ownership of a strong patent has often enabled an independent inventor or a small concern to deal on a basis of equality with a very large corporation having unlimited resources. In many cases, large corporations have been compelled to pay heavy damages for the infringement of a patent owned by a poor inventor or a concern having limited resources. It is particularly to be noted that new companies are constantly being organized to exploit newly patented inventions, and that of necessity most new companies are small and start with limited finances. To a small concern the possession of a good patent gives it the same advantage that a high powered rifle gives to a man in a jungle.

It is being stated with increasing frequency that the individual inventor is rapidly vanishing, and that the really important inventions are now being made in the research laboratories of the large corporations. Hence, it is argued that the stimulus and incentive of the patent system is no longer needed. Dr. Grosvenor, writing in 1929, and Dr. Rossman, writing in 1931, agree that the majority of the most important inventions and achievements in industry are still being made by the individual inventor, particularly by the so-called industrial inventor. At the recent hearings before the Temporary National Economic Committee, Dr. Bush of the Carnegie Institute of Washington stated that the independent inventor has a much wider scope of ideas than the research worker, and often produces out of thin air strikingly new and useful devices which might otherwise have been lost. At the same hearings, Mr. Kettering of General Motors Corporation paid tribute to the many brilliant men outside of the industrial laboratory by stating "we don't lock our laboratories up for the reason that we lock so much more out than we can in."

No Suppression of Patented Inventions

It is often stated that patented inventions are deliberately kept from the public as long as possible. There is very little, if any, truth in this statement. It is obviously to the interest of the inventor to make his invention available to the public at the earliest possible moment, and many inventors move Heaven and Earth to place the device of the invention into the hands of the consuming public. Everybody, who has ever made an invention or tried to exploit an invention, knows that it is one thing to make the invention and quite another to make a successful commercial product. It requires time and effort to interest capital and to develop the necessary machinery and processes to produce the new product first on a semi-commercial scale and then on a commercial scale. The development stage has been well named the "shirt-losing" stage, because most inventions fail at this point. Though no market has yet been developed and no money is coming in, yet a product has to be produced that will satisfactorily meet not only the use requirements but also the idiosyncrasies of the consuming

public. Considering the resistance of the public to new products and new ways of doing things, it is often a wonder that some inventions get as far as they do. It often takes as many as ten years for an invention to go from the idea stage to the point where it starts bringing a return to the people behind the invention. In some of the industries, particularly the heavy industries such as printing presses, and the metallurgical industry, this period may be greater than ten years. Hence, the patent term of seventeen years is in many cases entirely too short to adequately compensate the inventor for the time, effort, and money which he put into his invention.

Interferences

It is also often stated that inventors keep their inventions pending as long as possible.. This is only partially true. Most of the delay in getting a patent is generally due to the large number of applications that are always awaiting action in the patent office, the small number of patent examiners, and the inadequate classification system for patents. Then, the granting of the patent is often held up, because the inventor and the examiner cannot agree on the scope of the patent so that the inventor has to appeal to the Board of Appeals and possibly to the courts. Then again, about five per cent of the applications become involved in interferences, and if the interference is hotly contested, the case may be delayed four or five years more. Most of the interferences are honest contests of priority, but unfortunately there are a few industrial establishments that make it a practice to file drag net applications in an attempt to pirate the inventions of persons unable to adequately protect their interests.

New Provisions Are Discriminatory

I regret that space requirements make it impossible for me to discuss the hearings that were recently held before the Temporary National Economic Committee and the tentative recommendations which it made to Congress. It is my opinion, and I have so expressed myself to the Committee, that the position of the individual inventor and of the small manufacturer was not adequately presented.

Against American Inventors

Three of the provisions are to my mind particularly detrimental to the interests of the individual inventor and the small industrial establishment. Effective August 5, 1940, the period within which an inventor may make public use or sale of the device of his invention before filing his patent application has been reduced from two years to one. The cutting down of the period of permissible public use will automatically eliminate a large number of inventors who find it necessary to obtain some financial return before going to the expense of filing patent applications. Furthermore the Supreme Court of the United States has recently decided that the provision as to public use is a discrimination in favor of foreign inventors, who may use their inventions in their own countries for any number of years, and then upon learning that the invention is being commercialized in the United States rush to the Patent Office and obtain a valid patent. At the time of the decision, the period of permissible public use was two years. Hence, the law changing this period to one year is still more discriminatory against American inventors.

Effective August 7, 1939, the Commissioner was authorized in his discretion to require an applicant to respond to an Office Action within six months *or such shorter time, not less than thirty days,* as may be fixed in a written notice to the applicant. I was opposed to this change, but now that it has been made it is my hope that Commissioner will apply it *with a great deal of discretion.*

Against Individual Inventors and Small Industries

The Temporary National Economic Committee also recommended a change in the term of the patent. At the present time, patents, for every subject matter except designs, are issued for seventeen years from the date of issuance. The recommended change would keep this period at seventeen years, but provides that the period shall in no case be more than twenty years from the date of the application. Hence, if an application is delayed in the Patent Office for five years through no fault of the inventor, nevertheless the actual life of the patent is cut by two years.

This recommendation to my mind is a discrimination against the individual inventor and small industrial establishments. Large corporations have the means to add more men to their patent departments to complete the prosecution of patent applications within three years, whereas many inventors are greatly put to it as matters now stand in prosecuting their applications as quickly as possible. In many cases, inventors will have to take time from the important work of exploiting the invention to gather the necessary data and to otherwise cooperate with their patent attorneys to get their application through in three years. In many cases, it will necessarily mean that the inventor will have to cancel some of the claims necessary to adequately protect the invention in order to obtain a patent for the full seventeen years. In view of the circumstances, it is not at all surprising that the large companies are behind the proposed change. It will add to their expense of getting patents, but it will certainly eliminate a goodly number of their smaller competitors as far as patents are concerned.

Improper Practices by Infringers

In my opinion, the position of the individual inventor and of the small industrial establishment has not been adequately presented to the Temporary National Economic Committee. Patentees have been accused of using patents for improper purposes and in an improper manner, but very little has been said of the tactics of certain industrial establishments. Inventors are the benefactors of humanity, and we owe it to them to make their way easier and to endeavor to put a stop to certain improper practices against them.

The Committee should investigate the common practice of obtaining disclosures from inventors and then filing conflicting applications in the Patent Office so that the invention may be pirated with impunity. The Committee should investigate the refusal of certain concerns to pay royalties under any circumstances. One of the firms that was given a clean bill of health by the Committee has often boasted that it would never pay royalties this side of the Supreme Court. The Committee should look into the practice of "ganging up" on patentees, who seek the protection of the courts. Several large competitors often contribute to defense funds against a smaller competitor, thereby greatly increasing his burden. In a few instances, large corporations have joined a "Holy War" against an individual inventor, though the subject matter of the patent was not of their concern.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING MARCH 30, 1940

SUMMARY

Cigarette paper ..... 940 cs.
Painting paper ..... 1 cs.
Newsprint ..... 369 rolls
Wrapping paper ..... 8 bls.
Filter paper ..... 70 bls., 109 cs.
Surface coated paper ..... 127 cs.
Raw felt paper ..... 24 rolls
Cardboard ..... 10 cs.
Paper reeds ..... 100 rolls
Miscellaneous paper..5 crates, 8 pkgs., 1 ble., 221 rolls, 8 cs.

CIGARETTE PAPER

P. J. Schweitzer, *Excalibur,* Marseilles, 1 cs.
Globe Shipping Co., ——, Bordeaux, 4 cs.
De Manduit Paper Corp., ——, Havre, 578 cs.
American Tobacco Co., ——, Bordeaux, 199 cs.
De Manduit Paper Corp., ——, Bordeaux, 5 cs.
Braunstein Freres, Inc., ——, Havre, 83 cs.
W. I. Chudleigh, ——, Havre, 70 cs.

PAINTING PAPER

G. E. Stechert, ——, Havre, 1 cs.

NEWSPRINT

Jay Madden Corp., *Mormacsun,* Finland, 369 rolls.

WRAPPING PAPER

Sharp Paper Specialty Co., Inc., ——, Rotterdam, 8 bls.

FILTER PAPER

H. Reeve Angel & Co., Inc., ——, Bordeaux, 70 bls, 16 cs.
E. Fougera & Co., ——, Bordeaux, 86 cs.
W. I. Chudleigh, ——, Bordeaux, 7 cs.

SURFACE COATED PAPER

Gevaert Co., of America, *Nidarnes,* Antwerp, 127 cs., (unfinished photo-paper).

RAW FELT PAPER

Knickerbocker Carriers, Ltd., ——, Rotterdam, 24 rolls.

PAPER REEDS

F. C. Strype, ——, Bordeaux, 100 rolls.

CARDBOARD

Toronto Type Foundry, ——, Havre, 3 cs.
Braunstein Freres, Inc., ——, Havre, 7 cs.

MISCELLANEOUS PAPER

G. E. Stechert, ——, Havre, 2 cs., 1 ble.
American Express Co., ——, Havre, 8 pkgs.
——, *Mormacstar,* Bergen, 221 rolls.
F. C. Strype, ——, Rotterdam, 5 crates, 6 cs.

RAGS, BAGGINGS, ETC.

D. Bennedetto, Inc., *Excalibur,* Alexandria, 168 bls. old bagging.
A. W. Fenton, Inc., *Excalibur,* Alexandria, 77 bls. old cotton rags.
Fritz Stern, *Excalibur,* Alexandria, 61 bls. old dark cotton rags.
W. Steck & Co., *Excalibur,* Alexandria, 72 bls. old bagging.
G. W. Millar & Co., Inc., ——, Rotterdam, 40 bls. old bagging.
Continental Bank Trust Co., ——, Havre, 134 bls. old cotton rags.
National City Bank, ——, Liverpool, 3 bls. rags.
Philadelphia National Bank, ——, Liverpool, 366 bls. old bagging.
E. J. Keller Co., Inc., ——, Antwerp, 82 bls. bagging.
W. J. Green & Co., *Nidarnes,* Rotterdam, 51 bls. rags.
Robert Blank, ——, Havre, 305 bls. rags.
Chase National Bank, ——, Havre, 125 bls. old bagging.
E. J. Keller Co., Inc., ——, Havre, 327 bls. rags.
Castle & Overton, Inc., *Buenos Ayres,* Buenos Ayres, 34 bls. old garments, 94 bls. bagging.
——, ——, Shanghai, 400 bls. cotton waste.
Banco Com'l de Greece, *Sulina,* Piraeus, 24 bls. rags.

OLD ROPE

W. Steck & Co., ——, Rotterdam, 49 coils.
Banco Com'l de Greece, *Sulina,* Piraeus, 30 coils.

WOOD PULP

Bulkley Dunton Pulp Co., Inc., *Mormacsun,* Hommelvik, 510 bls. dry sulphite, 86 tons.
Cellulose Sales Co., Inc., *Mormacsun,* Hommelvik, 720 bls. dry sulphite, 130 tons.

BOSTON IMPORTS

WEEK ENDING MARCH 30, 1940

F. J. Fawcett, Inc., ——, Rotterdam, 185 bls. flax waste.
D. M. Hicks, Inc., ——, Rotterdam, 67 bls. wood pulp.
——, ——, Rotterdam, 127 bls. flax waste.
——, ——, Liverpool, 24 bls. rags.
Oxford University Press, ——, Liverpool, 13 cs. printing paper.
C. H. Powell Co., ——, Liverpool, 1 cs. parchment paper.
G. F. Malcolm, Inc., ——, Liverpool, 69 cs. tissue paper.
Green Textile Associates, Inc., ——, Liverpool, 159 bls. cotton waste.
——, ——, Shanghai, 200 bls. cotton waste.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 30, 1940

——, *Mormacstar,* Bergen, 96 rolls paper.
Castle & Overton, Inc., *Buenos Ayres,* Buenos Ayres, 151 bls. old house cloths, 66 bls. old white cottons.

BALTIMORE IMPORTS

WEEK ENDING MARCH 30, 1940

J. Andersen & Co., *Mormacsun,* Hommelvik, 1500 bls. sulphite, 266 tons.
Bulkley Dunton Pulp Co., Inc., *Mormacsun,* Hommelvik, 1200 bls. dry sulphite, 203 tons; 1335 bls. bleached sulphite, 267 tons; 700 bls. unbleached sulphite, 140 tons; 255 bls. easy bleaching sulphite, 51 tons.
Central Hanover Bank Trust Co., *Mormacsun,* Hommelvik, 250 bls. unbleached kraft sulphate, 50 tons; 125 bls. sulphate, 25 tons.
Congoleum Nairn Co., ——, Havre, 506 bls. old rags.

NEWPORT NEWS IMPORTS

WEEK ENDING MARCH 30, 1940

Cellulose Sales Co., Inc., *Mormacsun,* Hommelvik, 1125 bls. sulphate, 226 tons.
Bulkley Dunton Pulp Co., Inc., *Mormacsun,* Hommelsvik, 2100 bls. sulphate, 420 tons; 150 bls. sulphite, 30 tons.
De Manduit Paper Corp., ——, Bordeaux, 385 cs. cigarette paper.

NORFOLK IMPORTS

WEEK ENDING MARCH 30, 1940

American Tobacco Co., ——, Bordeaux, 334 cs. cigarette paper.
Champagne Paper Corp., ——, Bordeaux, 437 cs. cigarette paper.
R. J. Reynolds Tobacco Co., ——, Bordeaux, 728 cs. cigarette paper.
Champagne Paper Corp., ——, Havre, 1675 cs. cigarette paper.
R. J. Reynolds Tobacco Co., ——, Havre, 1136 cs. cigarette paper.
New York Trust Co., ——, Havre, 287 bls. bagging.
Loumar Textile By Products, Inc., ——, Havre, 140 bls. bagging.
E. J. Keller Co., Inc., ——, Havre, 140 bls. bagging.

Rush Work on N. C. Pulp Co.

PLYMOUTH, N. C., April 1, 1940—With weather conditions again becoming favorable construction at the pulp mill of the North Carolina Pulp Company here is progressing rapidly and is expected to be totally completed by the latter part of the summer although much of the new plant will be in operation long before that time.

Approximately 600 additional men have been given employment by the pulp company and contractors on the job in the erection of a new bleaching plant, machine building, filter plant and extensions to the present wet room, turbine room, and boiler room.

Around 125 men are employed by the Muirhead Construction Company of Durham, which has contracts for pouring all building foundations and concrete floors. In addition to this Muirhead has subcontracted for all brick work and roofing.

The Rohleder Construction Company of Philadelphia is employing about 75 men in building the new filter plant and turbine room extension. The filter plant being almost completed, will probably begin operation with the cutting in of the piping system and a few finishing touches.

Structural steel for all new buildings is being furnished and erected by The Bethlehem Steel Company of Bethlehem, Pa. Around 20 men are employed in this work and although weather conditions have made this a very slippery job no one as yet has been seriously injured.

The new power boiler is being installed by the Combustion Engineering Company of New York, which employs around 50 men on this job.

Several contractors are engaged at work upon the numerous tanks being erected. The Fanning Schuett Company of Philadelphia finished the concrete tanks March 8 while the W. E. Caldwell Company has just begun erection of the steel tanks. The Kalamazoo Tank and Silo Company of Kalamazoo, Michigan, is at work on the wood and tile tanks.

When the present construction work is completed the new additions will afford equipment for bleaching and improving the present grade of pulp.

Canada Exports More Wood Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., April 3, 1940—Exports of wood pulp from Canada during 1939 totaled 705,515 short as against 554,037 tons in the preceding year. Exports of the various classes were as follows: bleached sulphite 299,686 tons; mechanical pulp 168,652 tons; unbleached sulphite 109,159 tons; unbleached sulphate 108,869; wood pulp screening 10,080 and other wood pulp 9,059 tons. With the exception of the last mentioned grade, all classes during 1939 shared in the increased trade.

New Air Eliminator

A new automatic valve, described as an Air Eliminator, is announced by the Armstrong Machine Works, 886 Maple street, Three Rivers, Mich. Typical industrial uses are said to include removal of air from steam-heated retorts, paper machines creosoting cylinders, and on-and-off steam mains.

The unit is self-compensating for changes in steam pressure. The unit measures 12½ in. in height, weighs 30 lbs., and has valve bodies made from bronze.

Speaks on Flax for Cigarette Paper

CHICAGO, Ill., April 1, 1940—Cigarette paper manufactured in an American paper mill from domestically-grown flax fiber was cited as another advance on the chemurgic front last week in a paper read before the sixth annual National Farm Chemurgic Conference here by Harry H. Straus, president of the Ecusta Paper Company.

According to Mr. Straus, the mill will consume flax fiber from Minnesota and California this year, giving a boost to the growing movement for increasing the domestic flax crop and reducing flax imports. Mr. Straus estimated that the mill would take the flax production of between 75,000 and 100,000 acres.

"The reception which our paper has found among the leading cigarette manufacturers in this country has already resulted in an expansion of our mill, which will increase its capacity by about 50 per cent over the output originally planned," Mr. Straus said. "At the present time we are employing approximately 900 people, most of whom are natives of the county in which we are operating. We have trained these workers, under expert instructors whom we had available, in the art of making paper. We have found labor conditions very satisfactory here, and we have been told that our advent into the district has been very beneficial.

"If I may call cigarette paper a perfect illustration of farm chemurgy possibilities, I want to say that many other such opportunities exist whereby agriculture and industry could join in the establishment of new industrial developments and could thus help prosperity in this country."

C. E. Raney and R. Reinholt Promoted

MONROE, Mich., April 1, 1940—The Monroe Paper Products Company has announced the appointment of Charles E. Raney as acting general manager and Reinholdt Petersen as assistant general manager in charge of sales. The promotions were made as a result of the sudden death in Florida March 8 of Thomas F. Sullivan, vice president and general manager of the firm.

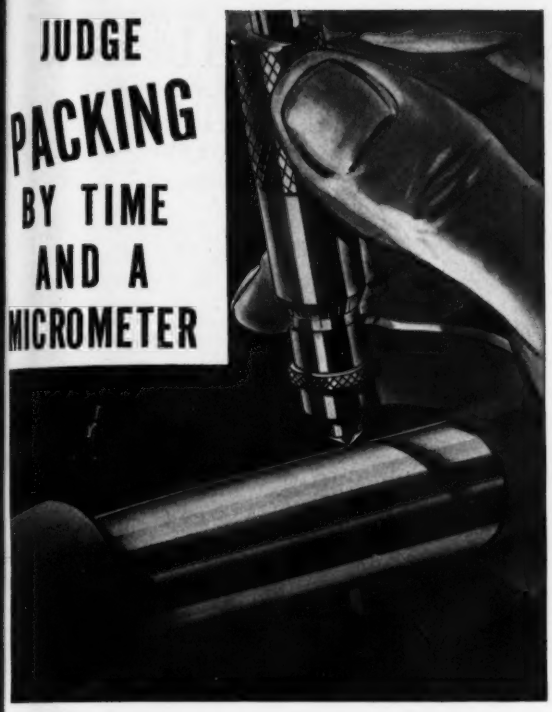
Mr. Raney has been with the company here five and a half years in the capacity of superintendent. Mr. Petersen has been in Monroe two and a half years as sales manager, succeeding Leo Spade, but had been previously connected with the firm as its Cleveland sales representative. Mr. Raney will have charge of the production end of the business and Mr. Petersen of all sales activities.

Final action on the appointments is expected to be taken as soon as a meeting of the full board of directors can be held. Two board members are at present in Florida.

The acting general manager and the late Mr. Sullivan were associated with the same firm, Container Corporation of America, in Chicago prior to Mr. Sullivan's coming to Monroe. Mr. Raney, until coming here, had been in charge of manufacturing in the paperboard division of the corporation and Mr. Sullivan was a plant superintendent.

Both the new executives learned the paperboard industry from their fathers. Mr. Raney's father built several mills and Mr. Petersen was associated with his father in a paper box plant.

JUDGE PACKING BY TIME AND A MICROMETER



The primary function of packing is to prevent leakage around steam rods, pump shafts and valve stems. Most any packing will do this for a time . . . if you squeeze it in tightly enough. But how long will it last? How much will it wear the shaft? Time and wear . . . these are the all important factors in judging packing, the factors we want you to consider in comparing Greene, Tweed with any other packing on the market.

PALMETTO
for steam, air, hot fluids

PALCO
for water

PELRO
for solvents, oils

CUTNO
for alkalis

SUPER CUTNO
for acids

A TEST WILL CONVINCE YOU

Let us send you a free working sample. Compare the length of service it gives with any other packing. Measure the shaft before and after the test. Greene, Tweed Packing invites comparison.

GREENE, TWEED
SELF-LUBRICATING
PACKINGS

GREENE, TWEED & CO.
101 PARK AVENUE NEW YORK, N. Y.

April 4, 1940

CLAYS OF KNOWN QUALITY
Are the "Yardstick"!

The term "Yardstick" is used in many ways these days—and when it comes to CLAYS it is quite applicable . . .

QUALITY CHINA CLAYS from England are the recognized "yardstick" for the measurement of the characteristics and values of other china clays, regardless of source or origin . . . You, as a paper manufacturer, know this.

Notice the frequent comments and references—"as good as clays from England" . . . "the equivalent of English clays" . . . "you can secure clays from us similar to those from England" . . . and so on . . . The trouble with these references, many of which are misleading and inaccurate, is that they never tell you *WHAT CLAYS* from England . . . This seems to be a secret!

One thing sure, such terms as these cannot be applied to HIGHEST QUALITY CHINA CLAYS from England, because they have no peer—nor legitimate substitutes . . . Such clays are a natural product of mother earth, mined continuously for more than 200 years and universally recognized for DEFINITE SUPERIORITY.

There are plenty of these CLAYS FROM ENGLAND in the United States today . . . You can confirm this readily by inquiry to any clay importer . . . So, if you read or someone tells you otherwise, put it down as misleading and false, as your own investigations will show.

USE
CLAYS OF KNOWN QUALITY FOR COATING AND FILLING

Advertisement

New York Paper and Pulp Market Review

Wholesale Paper Sales Average A Little Lower This Week But Higher Than For Like Week Last Year On Most Grades—Pulp Market Quiet —Lower Prices On Some Grades of Rags—Old Waste Paper Unchanged.

Office of the PAPER TRADE JOURNAL,
Wednesday, April 3, 1940.

Sales volume in the wholesale paper market has leveled off a little during the last two weeks in many grades of paper. This decline is relatively small and approximates the declining trend in general business activity. From reports received from many manufacturers' representatives and general paper merchants, the decline in wholesale trade in February, from January, was approximately 1.5 per cent, with sales in February about 8 per cent above sales in February of last year. In some grades of paper current sales are reported about equal to that of the same period last year, while others report sales average around 5 per cent higher than at this date last year.

The index of general business activity declined to 94.1 per cent for the week ended March 23, from 95.0 per cent for the preceding week, compared with 88.5 per cent for the like period in 1939.

Paper production reported by 202 mills for the week ended March 23 was estimated at 81.9 per cent, compared with 82.8 per cent for 1939, with 68.5 per cent for 1938, with 91.1 per cent for 1937, and 75.0 per cent for the like period for 1936.

Paper board production for the week ended March 23 was 70.0 per cent, compared with 73.0 per cent for 1939, with 62.0 per cent for 1938, with 88.0 per cent for 1937, and with 65.0 per cent for the corresponding week in 1936.

The news of the week in the newsprint market is the announcement of the Great Northern Paper Company that its prevailing price of $49 per ton on newsprint would be continued for the second quarter of the current year. This is $1 per ton less than the company's and the prevailing price of the industry for the second quarter last year, when $50 per ton was announced by all domestic and Canadian producers.

Mechanical Pulp

No important change in price or demand has been reported in any grade of mechanical pulp this week.

Chemical Pulp

Prices continue unchanged and firm on all standard grades of chemical pulp during the current week. Trading is generally reported as rather slow.

Rags

The rag market is reported as rather quiet at this date. Lower prices are quoted on some grades of new and old domestic rags. New white No. 1 shirt cuttings are currently quoted at from 7.40 to 7.65; new unbleached at from 7.40 to 7.65; blue overall at from 4.75 to 5.00; and O. D. khaki cuttings at from 3.15 to 3.35. Roofing rags are also lower, the No. 1 grade being currently quoted at from 1.10 to 1.15, and No. 2 at from .90 to .95.

Old Rope and Bagging

The old rope market is reported as firm with buying slow and prices unchanged. Foreign Manila rope is currently quoted at from 4.75 to 5.00, and domestic Manila at from 4.50 to 4.75.

Lower prices are quoted on roofing bagging, the No. 3 grade being currently quoted at from .90 to 1.00.

Old Waste Paper

No important changes in the paper stock market have been reported this week. Prices are rather soft on many grades but quotations hold at this date to prevailing market levels.

Twine

No important change in the twine market has been reported this week. Prices are firm on all grades of hard and soft fiber twines.

Kraft Association Elect

At the annual meeting of the Kraft Paper Association, held at the Waldorf-Astoria, New York, on March 28, the following officers were elected:

President, N. S. Stone, Mosinee Paper Mills Company; Vice-president, E. R. Gay, St. Regis Paper Company.

Executive Committee members: J. E. Alexander, Nekoosa-Edwards Paper Company; W. H. Anders, Nashua River Paper Company; E. A. Charlton, Crossett Paper Company; J. H. Cowhill, Tomahawk Kraft Paper Company; H. S. Daniels, Union Bag and Paper Corporation; W. J. Henry, Southern Advance Bag & Paper Company, Inc.; R. A. McDonald, Crown Zellerbach Corporation; C. R. McMillen, Chesapeake-Camp Corporation; J. R. Miller, West Virginia Pulp & Paper Company; and J. L. Stille, Southern Kraft Corporation.

Sandy Hill Acquires Baker Line

The Baker Manufacturing Corporation, Saratoga Springs, N. Y., well known manufacturer of substantial pulp and paper mill machinery for the past sixty years, has completed arrangements with the Sandy Hill Iron and Brass Works whereby all patents, patterns, drawings, manufacturing rights, and good will of the Baker Manufacturing Corporation have been acquired by the Sandy Hill Iron and Brass Works. All of its products in the future will be manufactured at Hudson Falls. All correspondence pertaining to machinery formerly manufactured by the Baker Manufacturing Corporation should be addressed to the Sandy Hill Iron and Brass Works, Hudson Falls, N. Y.

The Nekoosa Portable Wood Peeler Will Extend Your Peeling Season

Peeling 100 inch Balsam at the rate of seven cords per hour.

Frequently hand peeling of pulp wood is delayed and additional expense of peeling is incurred by reason of a backward spring. The Nekoosa Peeler will clean wood before it is ready for hand peeling and will do an excellent job of peeling long after the season is considered closed for hand peeling. In fact it will peel certain species of wood the year 'round. This feature of mechanical peeling offers many obvious advantages to woods operators.

Nekoosa Foundry & Machine Works, Inc.

NEKOOSA, WIS., U. S. A.

"NON-USERS ARE THE LOSERS"

TENAX FELTS

FINISH AND SPEED

TAKE STOCK - THEN LOOK AHEAD!

How did your felts stand up to their duty this past year? If they were TENAX FELTS youall and weall know the answer,—TENAX FELTS have led the production procession for fifty interesting and profitable years.

Let's not rest on the record. If you are equipped with TENAX FELTS let us give you some service; if not, let us tell you their proud and economical story.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY

NEWFANE, N. Y.—U. S. A.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, April 3, 1940.

BLANC FIXE—Prices on blanc fixe are firm and conform to prevailing market quotations. The pulp is currently quoted at $35 per ton, in barrels, at works. The powder is quoted at $50 per ton, f.o.b., works.

BLEACHING POWDER—Quotations on bleaching powder are firm under moderate buying and continue unchanged at prevailing market levels. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are unchanged at prevailing market levels. Standard domestic casein, 20-30 mesh, is currently quoted at from 10 to 11 cents per pound; 80-100 mesh, at from 11 to 11½ cents per pound. All prices in bags, car lots. Standard Argentina casein is currently quoted at from 10 to 11 cents per pound; French casein at from 14½ to 15 cents per pound.

CAUSTIC SODA—Quotations on caustic soda are firm and unchanged with trading reported as moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and continue unchanged for the week. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm under moderate buying and conform to prevailing market levels. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm with prices a little lower for the week. "G" gum rosin is currently quoted at $5.45 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is quoted at $5.40 per 280 pounds, gross weight, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.90 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm under a moderately good demand with current quotations continuing practically nominal. Domestic salt cake is currently quoted at $17 per ton; in bulk; chrome salt cake at $16 per ton; all prices in car lots, f.o.b., shipping point. The quotation of $20 per ton on imported salt cake continues nominal. January imports totaled 10,457 tons.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market prices. Demand continues moderate. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue unchanged at prevailing market quotations. Pearl is currently quoted at $2.60 per 100 pounds; powdered starch at $2.70 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm under a moderate demand. The commercial grades are currently quoted at $1.15 per 100 pounds: iron free at $1.45 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market levels. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $23 to $45 per ton.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.00	@	$5.50
Superstandard	4.62½	"	5.00
Northern Standard Wrapping	4.25	"	4.62½
Standard Wrapping	4.00	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	—
White Pat. Coated	67.50	"	—
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1.	$39.10 @ $46.00		$40.25 @ $47.25
100% Rag	31.05 " 36.50		32.20 " 37.75
85% Rag	.... "		29.90 " 35.00
75% Rag	23.60 " 27.75		24.75 " 29.00
65% Rag	.... "		21.65 " 26.25
50% Rag	17.55 " 21.50		18.70 " 22.75
25% Rag	14.65 " 17.75		15.80 " 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.95 @ $11.00	$10.10 @ $12.25
No. 2	8.05 " 9.75	9.25 " 11.25
No. 3	7.60 " 9.25	8.50 " 10.75
No. 4	7.30 " 9.00	8.50 " 10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,
Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.00
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.00	@	3.40
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	2.95
Strong Unbleached Sulphite	2.75	"	2.85
(On Dock, Atlantic Ports)			
Kraft Bleached	3.37½	@	3.50
Kraft Light & Strong	2.50	"	2.75
Kraft No. 1	2.40	"	2.65
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.00	"	2.37½
(Delivered)			
Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	7.40	@	7.65
Silesias No. 1	4.50	"	4.75
New Unbleached	7.40	"	7.65
Blue Overall	4.75	"	5.00
Fancy	2.25	"	2.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.35

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.90	"	.95
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal.

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

WARREN'S "PUMP AUDIT" OFFERS

3 Simple Steps TO LOWER PUMPING COSTS

Warren's "Pump Audit" is a practical, straightforward method designed to (1) get the real facts on your pumping costs, (2) match those costs against the operating economy of modern, efficient pumps, (3) enable you to plan a pump replacement program that will *pay its way* through savings on pump maintenance and power consumption.

In one plant, the Pump Audit showed six 30 hp centrifugal pumps were throwing away $200 a month in power alone. Replacement of these pumps one by one was planned so that power savings will pay for the new pumps.

If you want a "Pump Audit" made in your mill without charge or obligation, see your Warren representative or write.

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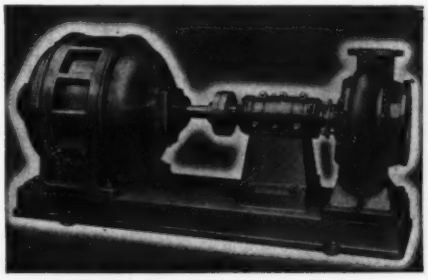

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INCORPORATED, WARREN, MASSACHUSETTS

KALAMAZOO

TILE CHEST

Adapted for Use with Agi-flo Pump

The Shartle Agi-flo agitates and delivers the stock. The Kalamazoo Glazed Tile Chest gives you the advantages of low cost storage and the utmost in cleanliness.

More than 700 installations of Kalamazoo Glazed Tile Tanks now in use prove their unvarying dependability. For maximum efficiency plan to use a Kalamazoo Chest with your next Agi-flo, or any other type of agitator.

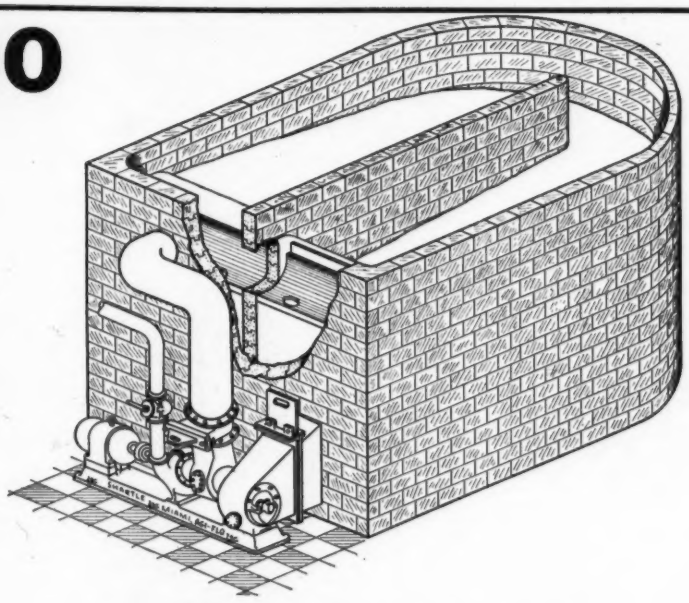

Illustration courtesy of Shartle Brothers Machine Company, manufacturers of the Shartle Agi-flo Pump.

KALAMAZOO TANK & SILO CO.

KALAMAZOO, MICHIGAN

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens..	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light....	2.00	"	2.25
Wool Tares, heavy..	2.12½	"	2.25
Bright Bagging.....	2.25	"	2.50
Manila Rope—			
Foreign	4.75	"	5.00
Domestic	4.50	"	4.75
Jute Threads.....	3.00	"	3.25
Sisal Strings.....	2.00	"	2.25
Mixed Strings.....	.70	"	.85

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1....	2.25	@	2.50
Soft White No. 1..	1.80	"	1.90
Soft White Extra..	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag....	1.00	"	1.10
Solid Flat Book....	.62½	"	.67½
Crumbled No. 1...	.70	"	.75
Ledger White Stock.	1.60	"	1.70
Ledger Stock Colored	1.05	"	1.15
Manila—			
New Env. Cut....	1.70	"	1.80
New Cuttings.....	1.30	"	1.40
Old Kraft Machine—			
Compressed bales..	1.05	"	1.15
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue.	.70	"	.75
Strictly Folded....	.35	"	.37½
Corrugated	.40	"	.45
No. 1 Mixed Paper..	.17½	"	.20

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.18½	@	—
White Hemp.....	.18½	"	—
Fine Polished—			
Fine India.....	.23	"	—
Unpolished—			
Box	.14¾	"	—
Paper Makers.....	.15	"	—
Tube Rope.....	.16¼	"	—
Wall Paper.....	.15¾	"	—
Wrapping	.18	"	—
Soft Fiber Rope...	.16¼	"	—
Cotton	.21	"	—

(Hard Fiber)

Medium Java.....	.19	"	—
Mex. Sisal.....	.16	"	—
Manila	.24	"	—
Domestic	—	"	2.50
Sisal Rope.....	2.25	"	2.65
Mixed Rope.....	.85	"	1.00
Transmission Rope..	3.00	"	3.50
Foreign	3.50	@	—
Soft Jute Ropes.....	3.00	"	3.50
Manila Rope—			
Foreign	4.50	"	4.75
Jute Carpet Threads.	1.50	"	1.75
Gunny Bagging—			
Foreign	2.85	"	—
Domestic	2.40	"	2.50
Bleachery Burlap....	3.50	"	3.75
Scrap Burlap—			
Foreign	2.50	"	2.60
Domestic	2.50	"	—
Scrap Sisal.....	2.50	"	2.60
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy..	2.50	"	2.65
New Burlap Cuttings	3.25	"	3.50
Aust. Wool Pouches.	2.90	"	3.15
Heavy baling bagging	2.60	"	2.90
Paper Mill Bagging..	1.75	"	2.00
No. 2 Bagging	1.10	"	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	—	@	.03
Fancy Percales....	.04	"	.04¼
New White No. 1.	—	"	.07½
New Light Flannelettes	.05	"	.05¼
Silesias No. 1	.05	"	—
New Black Silesias..	.03½	"	.03¾
Soft Unbleached...	.07	"	.07½
Blue Cheviots.....	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls.....	.04¾	"	.05
New Black, Soft..	.03	"	.03¼
Khaki Cuttings.....	.03	"	—
O. D. Khaki.....	.03	"	.03½
Corduroy	.02¾	"	.03
New Canvas.....	.06¾	"	.07¼
B. V. D. Cuttings...	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	—	"	2.75
Miscellaneous	2.00	"	2.50
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues.....	1.50	"	2.00
Old Blue Overalls ..	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.00	"	1.25
No. 2.....	—	"	1.10
No. 3.....	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons.....	(nominal)		
Dutch Blues.....	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians.....	(nominal)		
Old Linsey Garments.	(nominal)		
New Silesias.....	(nominal)		

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.04	"	.04½
Light Silesias.....	—	"	.04½
Silesias, No. 1....	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached..	.05½	"	.06
Washable, No. 1..	—	"	.04
Blue Overall.....	—	"	.05
Cottons—According to grades—			
Washable No. 2...	—	"	.02
New Blue	—	"	.02
Fancy Percales....	—	"	.03
New Black Soft...	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.....	.03½	"	.04
No. 2 Mixed.....	.03	"	.03¼
Corduroy	—	"	.02½
New Canvas.....	.05½	"	.06
New Black Mixed.	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.75	"	3.00
Thirds and Blues—			
Miscellaneous	2.00	"	2.25
Repacked	2.50	"	2.75
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1....Nominal			
Domestic No. 1..	1.50	"	1.60
Domestic No. 2...	1.35	"	1.45
Roofing Bagging..	—	"	1.30

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign .....Nominal			
Domestic	2.50	@	3.00
Manila Rope.....	3.25	"	3.75
Sisal Rope.....	1.75	"	2.00
Mixed Rope.....	1.25	"	1.50
Scrap—			
No. 1.....	2.25	"	2.50
No. 2.....	—	"	1.30
Wool Tares, heavy..	3.50	"	3.70
Mixed Strings	.75	"	1.00
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o b. Phila.)

Shavings—			
No. 1 Hard Write	2.25	@	2.30
No 2 Hard White	2.00	"	2.10
No. 1 Soft White	1.85	"	1.90
No. 2 Soft White	1.50	"	1.60
No. 1 Mixed.....	.90	"	1.00
Solid Ledger Stock..	1.50	"	1.60
Ledger Stock, white.	1.40	"	1.45
Ledger Stock, colored	1.10	"	1.20
No. 1 Books, heavy..	.85	"	.90
Manila Cuttings.....	1.75	"	1.80
Print Manila.....	.50	"	.55
Container Manila....	.40	"	.45
Kraft Paper.....	1.00	"	1.10
No. 1 Mixed Paper..	.25	"	.30
Straw Board Chip...	—	"	.40
Binders Board Chip..	.40	"	—
Corrugated Board....	.50	"	.60
Overissue News.....	.70	"	.75
Old Newspapers.....	.40	"	.45

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White	1.85	"	2.15
No. 2 Mixed.....	.75	"	.80
Solid Ledger Books..	1.30	"	—
Overissue Ledger Stock	1.30	"	1.50
Mixed Ledgers.....	.85	"	.90
No. 1 Books, heavy..	1.00	"	1.10
No. 1 Books, light..	.65	"	.75
Crumpled Stitchless Book Stock.....	.55	"	.65
Manila Env. Cuttings	1.70	"	1.85
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News..	1.40	@	1.50
No. 1 Kraft.....	1.25	"	1.30
Mixed Papers.....	.15	"	.17½
Print Manila.....	.50	"	.55
Container Manila...	.60	"	.70
Old Newspapers.....	.30	"	.40
Paper Wool Strings..	.90	"	1.00
Overissue News.....	1.00	"	1.10
Box Board Chips....	.35	"	.40
Corrugated Boxes...	.35	"	.40
Kraft corrugated boxes	.95	"	1.05
New Kraft corrugated cuttings	1.40	"	1.50
Screening Wrappers	.60	"	.70

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	—	"	2.85

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots.			
No. 1 White $36.50		@	—
No. 1 Tints	37.50	"	—
No. 2 White	26.50	"	—
No. 2 Tints	27.50	"	—
No. 2 Golden Rod..	28.50	"	—
No. 3 White	22.00	"	—
No. 4 White	15.50	"	—
No. 4 Tints	16.50	"	—
No. 4 Golden Rod..	17.50	"	—
Direct mill shipment in three-ton lots.			
No. 5 White $10.40		@	—
No. 5 Tints	11.40	"	—
No. 5 Golden Rod..	12.40	"	—
No. 6 White	9.40	"	—
No. 6 Tints	9.90	"	—
No. 6 Golden Rod..	11.40	"	—
No. 7 White	8.40	"	—
No. 7 Tints	8.90	"	—
No. 7 Golden Rod..	10.40	"	—
Book—			
No. 1 M. F.	$7.75	"	—
No. 2 M. F.	7.25	"	—
No. 3 M. F.	6.60	"	—
No. 1 S. C.	8.25	"	—
No. 2 S. C.	7.75	"	—
No. 3 S. C.	6.25	"	—

Coated Book & Litho

Ton Lots (resale)

No. 1 .....$12.15		@	—
No. 2	10.50	"	—
No. 3	9.45	"	—
Coated tinted:.....	13.20	"	—
Golden Rod.....	14.80	"	—
Wrapping—delivered—			
Rag Brown.....	4.85	"	5.25
White Wrap.....	4.00	"	—
"B" Manila.....	4.90	"	6.15
No. 1 Manila....	$5.50	@	$6.90
Fiber	5.50	"	6.90
Kraft No. 2.....	5.50	"	6.90

(f.o.b. Cars, Toronto)

News per ton—			
Rolls (contract)..	46.00	"	—
Sheets	54.00	"	—

Pulp

Ground wood.....$36.50		@	—
Unbleached sulphite.	54.00	"	—
Bleached sulphite...	65.50	"	—
Kraft	47.50	"	—
Soda	58.00	"	—

Old Waste Paper

(In carload lots, f.o.b. Toronto)

Shavings—			
White Env. Cut...	2.40	@	—
Soft White.....	2.00	"	2.15
White Blk. News..	1.35	"	1.50
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	"	1.00
Light and Crumpled Book Stock.....	.80	"	.90
Ledgers and Writings	1.15	"	—
Manilas—			
New Manila Cut..	1.55	"	1.60
Printed Manilas...	.70	"	—
Kraft	1.15	"	—
News and Scrap—			
Strictly Overissue	.75	"	—
Strictly Folded ..	.70	"	—
No. 1 Mixed Paper	.60	"	—

CHICAGO

Waste Paper

(f.c.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings..	2.40	@	—
No. 1 Hard White	2.15	"	2.20
No. 1 Soft White.	1.85	"	1.95
Ledger and Writings	.85	"	.95
Solid Books.....	.95	"	1.05
Blanks	1.50	"	1.65
Krafts	1.15	"	1.35
New Kraft Cuts.....	1.40	"	1.50
Overissue News.....	.80	"	1.00
Old Newspapers—			
No. 1 Folded News	.65	"	.75
No. 1 Mixed Paper	.35	"	.55
Roofing Stocks—			
No. 1.....	.95	@	1.00
No. 2.....	.85	"	.90